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ORIGINAL ARTICLES.

A SERIES OF APPARENTLY WELL ESTABLISHED FACTS IN THERAPEUTICS ON WHICH ARE BASED SOME QUESTIONS OF GREAT PRACTICAL IMPORTANCE.

BY N. S. DAVIS, M.D., LL.D.

CHICAGO.

1. The three well-known anesthetics in common use—ether, chloroform and alcohol each and all, when received into the blood, either by inhalation, hypodermic injection, or by the stomach, first suspend the sensibility of the cerebral hemispheres (unconsciousness or anesthesia), and next they suspend in succession or simultaneously the functions of the respiratory, vasomotor and cardiac nerve centers or ganglia, thereby suspending life. It is hardly necessary to adduce proof of this proposition, as it is familiar to every practitioner of medicine and surgery.

2. Each of these three anesthetics act on the nervous centers in the same direction, and consequently each intensifies the action of the others, whether given together by inhalation as in the A. C. E. mixture, or separately by different methods, provided they are present in the blood at the same time. The correctness of this proposition is demonstrated by the experiments of Dubois in 1883, and still more fully by those of H. C. Wood as detailed in his "Address on Anesthesia" to the Tenth International Medical Congress, Berlin, 1890, and by many carefully observed clinical facts.

3. The action of these three anesthetics—alcohol, chloroform and ether, on the cerebral, respiratory, vasomotor and cardiac nerve centers, is not only in the same direction, but that direction is one of *diminished sensibility* or paralyzant in direct proportion to the quantity used. This has been so perfectly demonstrated by the well-known experiments of Sidney Ringer and Sainsbury; Professors Martin and H. C. Wood; David Cernay, J. H. Kellogg and others, particularly in regard to the action of alcohol, that it must be admitted as an established fact, or we must deny the value of all experimental therapeutics.

4. These anesthetics not only directly diminish nerve sensibility and force, but their presence in the blood so modifies the action of the hemoglobin, corpuscular elements and albumen, as to diminish the reception and internal distribution of oxygen and to lessen the activity of the cell nuclein and leucocytes; and consequently they lessen all metabolic and natural excretory processes. The correctness of this proposition is sustained by an amount of both experimental research and clinical observation sufficient to fill a fair-sized octavo volume. So far as relates to the action of alcohol, the reader will find these proofs alluded to more in detail in a paper prepared by me for the World's Temperance Congress in Chicago, 1893, and published in the second volume of "Temperance in all Nations," 58 Reade Street, New York, and also in an interesting volume "On the Effects of Alcohol," by Dr. J. E. Usher, London.

5. When alcohol or either of the anesthetics named, is retained in the blood but a few hours, as is usually the case when administered for strictly anesthetic purposes, the effects mentioned in the four preceding propositions soon disappear. But when the dose is repeated sufficiently often to keep it pretty constantly present in the blood and tissues for weeks, or months, or even years, as when alcohol is administered liberally from the beginning to the end of many of the acute general fevers and some chronic affections, or drank in the form of beer, wine or distilled spirits as a beverage, the constant impairment of nerve sensibility and force and the coincident impairment of oxidation processes necessary for healthy tissue metabolism and excretion, directly encourage fatty or atheromatous degenerations in almost every tissue in the body, and especially in the stomach, liver, lungs, heart and kidneys, as may be seen illustrated in every case of chronic alcoholism. It is this effect of alcohol in diminishing the internal distribution of oxygen and also the activity of the nuclein and leucocytes of the blood, that makes the individual using it more liable to attacks of almost every variety of acute disease, whether epidemic or endemic, and lessens his vital resistance when attacked. So true is this, that every modern writer of note on practical medicine tells us that even habitual *moderate* drinkers of alcoholic liquor give a much higher ratio of mortality when attacked with cholera, continued fever, pneumonia, influenza or almost any other acute disease, than the total abstainers. Even the more intelligent part of the non-professional public have come to quite generally recognize this inherent and inevitable power of alcohol to impair man's physical power and activity, and hence they prohibit its use in all circumstances requiring the highest degree of activity and endurance, whether mental or physical. Having stated as plainly as possible the five foregoing propositions, and believing their correctness to be capable of abundant proof, I will ask a few questions of very great practical importance both to the profession and the public:

1. If alcohol when taken into the living body directly diminishes nerve sensibility, muscular force, and so alters the constituents of the blood as to retard both the internal distribution of oxygen and natural tissue metabolism in direct proportion to the quantity taken, why do we continue to speak or write concerning it, or to use it, as a *stimulant, heart tonic or restorative agent?* Is not such designation untrue, and directly calculated to perpetuate errors of the most destructive character, both as regards its use as a medicine and as a beverage? Why not give it its

true designation, *i. e.*, an anesthetic and organic sedative; and to be used only as such?

2. If the presence of alcohol in the blood directly diminishes respiratory, vasomotor and cardiac nerve force, and retards the reception and internal distribution of oxygen, what possible indication can there be for its use in such diseases as pneumonia, diphtheria, typhoid fever, etc, in which all the functions just named are already below the natural standard? Would not its presence not only still further depress the respiratory and vasomotor functions, but also by retarding the internal oxidation and metabolic processes, help to retain in the system both the specific toxic agents and the natural products of tissue changes, and thereby increase both the duration of the disease and the danger of final exhaustion?

3. Does not an accurate study of the history of therapeutics show that, the greater the amount of alcohol or other anesthetics used in the treatment of the general acute diseases, especially those named under the preceding head, the higher has been the average ratio of mortality?

4. If alcohol and other anesthetics actually diminish cerebral, respiratory and vasomotor functions in proportion to the quantity used, why administer them to any patient coincidently with strychnin, digitalis, strophanthus, convallaria, cactus, or other direct cerebro-spinal, respiratory and vasomotor tonics? As both direct experiment and clinical observation have proved that strychnin, digitalis, etc., most reliably antagonize the effects of alcohol and chloroform, is it not the climax of therapeutic inconsistency to give a patient a hypodermic injection of strychnin and at the same time fill his stomach or rectum with whisky or brandy?

5. How is it possible to determine the real value of the antitoxin serum in the treatment of diphtheria, if the patient is given at the same time liberal doses of a toxic bacterial product in the form of wine, whisky or brandy? And if these latter are omitted or their quantity greatly reduced, how shall we know whether the increased ratio of recoveries is owing to the virtues of the antitoxin serum or to the omission of the toxin, alcohol? Having carefully noted the published results of the treatment of diphtheria by antitoxin serum, as given in the best medical periodicals, I find a very large proportion of the cases so imperfectly described as to render them of no value in determining practical results. In many cases, nothing is said about any coincident use of other remedies; in other cases it is simply said that stimulants and nourishment were given, but what kind or amount is not stated; in still other cases the administration of quinin, iron, etc., is mentioned in addition to stimulants and nourishment; and in one case reported in the *British Medical Journal*, the child, 6½ years old, presenting symptoms of an average case of diphtheria without laryngeal obstruction, was treated with antitoxin and was represented as progressing very favorably until the fifth or sixth day, when a moderate antitoxin injection was given and six ounces of brandy ordered to be given the succeeding twenty-four hours. The next day the child was cyanosed and soon died. Can any one be quite certain whether this last case died from the toxin of diphtheria, the antitoxin, or the torula cerevisæ toxin in the six ounces of brandy?

Is it not practicable to have three or four hospitals admitting diphtheria patients supplied with a sufficient quantity of some one of the reliable antitoxin preparations and then make a fair test of its efficacy by treating in parallel beds with good air, rigid cleanliness, and good milk for nourishment but no alcoholic stimulants, two series of cases as nearly alike in severity as possible. To one series of cases, let the antitoxin or antitoxin serum, be given in strict accordance with the most approved rules, and no other internal remedies. To the other series, let just enough calomel be given during the first or second day of the attack to procure one or two intestinal evacuations, and let this be followed by small but frequently repeated doses of a solution of bichlorid of mercury and belladonna until the diphtheritic membrane begins to break up, which is generally between the fourth and sixth days, then substitute suitable doses of tincture of chlorid of iron and quinin until the case is terminated. Let the most complete record possible be made in both series of cases, and then we shall have data that are parallel or comparable, and from which the most reliable practical conclusions can be deduced. If, in cases in either series, the disease invades the larynx sufficiently to demand it, intubation or tracheotomy should be performed as in other cases. The results of the two series of parallel cases thus managed would not only be comparable with each other, but both would be comparable with the results of the liberal alcoholic, and all other methods of treatment in vogue.

AN INSTRUCTIVE CASE OF APPENDICITIS NECESSITATING AN UNUSUAL METHOD OF OPERATION.

BY JOHN A. WYETH, M.D.

NEW YORK, N. Y.

On Sept. 29, 1894, I saw, in consultation with Dr. Herriman, of Long Island City, New York, a young lady, 16 years of age, who, from the history given me at the time, evidently had an attack of appendicitis beginning ten days before this time. There was a large well-recognized tumor in the right iliac fossa, and although deeply seated, fluctuation was evident by palpation through the abdominal wall and the intervening viscera.

Operation was advised, and undertaken at once. The anesthetic used was chloroform. Upon opening into the peritoneal cavity through the usual incision, a large mass was discovered, in no place adherent to the abdominal wall. It was evidently an abscess due to perforation of the appendix, the walls of this abscess being made up of plastic lymph thrown out in advance of the inflammatory process, and agglutination of the neighboring intestines.

I recognized that any attempt at the removal of such a large mass by dissection, would lead to its rupture, escape of pus into, and general infection of, the peritoneal cavity.

The whole mass was lifted over to the patient's right side, a contiguous surface of omentum was stitched to the wall of the incision in the abdomen in such a way that it shut off from the general peritoneal cavity the proposed opening into the abscess. Sutures were applied upon the outer side of the wall of the abscess, and this was also stitched to the incision. Iodoformized gauze was carefully packed into the wound, which was left open, and further operation deferred for forty-eight hours in order to secure firm adhesion of the abscess wall to the margins of the incision. Forty-eight hours later, the abscess was easily opened without an anesthetic, was freely drained and the patient made a perfect recovery.

There was present at the operation, in consultation, a medical practitioner of New York City, of large experience, who informed me that he had seen a patient of his perish from the rupture of an abscess in connection with appendicitis, which was in every respect similar to the one we had just operated upon; that

the surgeon had made an effort to dissect the abscess out, it had ruptured and caused a general infectious peritonitis, from which the patient died. I, myself, had seen one other case in which a fatal termination was scarcely averted by leaving the wound open, and general packing, and had determined then that I would never again undertake to dissect out a large well-recognized abscess of the appendix until I had secured adhesions sufficiently strong to hold the abscess wall in contact with the abdominal parietes.

It not infrequently happens that when the abdominal cavity is entered in operations for appendix abscesses of long standing (six or twelve days), there are no adhesions between the wall of the abscess and the anterior abdominal wall, but adhesions have formed posteriorly in the iliac fossa, or the abdominal wall immediately over the crest of the ilium. Under such circumstances, it is the proper practice to use the anterior incision as a guide to the abscess cavity through a posterior incision made along the crest of the ilium, or over the point of firm adhesions.

In this manner the abscess is opened and drainage secured without danger of infecting the peritoneal cavity.

MINERAL SPRINGS OF CALIFORNIA.

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From the earliest dawn of history, mineral waters have been highly extolled for their medicinal properties. The ancient Egyptians and Arabians used mineral waters in the treatment of many diseases. The hot sulphurous springs of Tiberias (now called Tabareah) have been in extensive use for the past 3,000 years, as they are at the present day, by patients from all parts of Syria. The thermal baths of Calirrhoe near the Dead Sea, made famous by Herod are still in use. The ancient Greek and Roman physicians prescribed mineral waters extensively, as may be seen from the writings of Hippocrates, Aristotle and Herodotus. Homer speaks of using mineral waters for bathing, for the preparation of sacrifice, for the reception of oracles and for holy marriages. Josephus and Pliny refer to the marvelous curative powers of mineral waters. The thermal springs of Thermopylæ, immortalized by the heroic Spartans, have been in use for over twenty centuries and many are the remarkable cures accredited to their waters. The ancients erected magnificent temples in proximity to these fountains of health and dedicated them to their god, Æsculapius. Costly tablets were inscribed and placed in the temples, commemorative of the patients' gratitude. (Some of these tablets may be seen even to this day in the museums of Europe.)

The popularity of these mineral fountains of health has not been decreased by the discoveries of new worlds. Indeed, we find that our own aborigines in America have been using mineral waters for centuries, often traveling hundreds of miles to drink and bask in their smiling waters. Nor have the modern discoveries in medical science decreased the use of mineral waters; on the contrary, mineral water bathing and the internal use of mineral waters have increased enormously in America, as well as all over Europe. Balneotherapy and the internal use of mineral waters have become recognized branches of medicine to such an extent that many European universities have established chairs which are filled by some of the ablest men of the period, for the purpose of teaching the effects of the external, as well as the internal, use of mineral waters on the human economy.

CALIFORNIA SPRINGS.

In California, on the golden shores of the Pacific, we have over two hundred mineral springs of all known varieties from the cool, delicious effervescing soda and sparkling Vichy, to the hot sulphurous wells direct from Pluto's realm, ever ready and ever flowing to alleviate suffering mortals. In 1890 I wrote:[1] "When our California mineral springs become more generally known and their similarity to the famous European spas better understood, our invalids will not find it necessary, nor indeed expedient, to undertake the long, tedious, expensive and in many instances hazardous journey abroad, when

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they can find right here in California almost the identical mineral waters they have in Europe, besides all the conveniences of luxurious accommodations, a greater variety of food products and a pure, dry and balmy atmosphere—an invigorating and stimulating winter climate not equaled in any other country on earth.

USES OF MINERAL WATERS.

The *sine qua non* of the use of any mineral water is that it be *thoroughly* analyzed by a competent chemist, that its mineral ingredients be vouched for, and that as the internal administration and external application of natural mineral waters have been reduced to a scientific basis, it is quite important that the rules regulating their administration should be followed.

[1] See Anderson's Mineral Springs and Health Resorts of California

Thousands of invalids, ill-advised or perhaps wholly unadvised, seek the different springs and health resorts annually. During my travels among the springs of California, I frequently found people whose cases were actually aggravated and a fatal termination hastened by the use of *the wrong mineral water*.

Mineral springs are not "cure-alls." As a rule, too much is claimed for them. The many marvelous cures cited and the many improbable and ridiculous statements seen on printed circulars do more harm than good. Sensible people are not going to believe that a "magnetic" mineral water can cure a "bad case of consumption," or that any "mineral water" cures heart disease, etc. On the other hand, it would be quite as flagrant an error to suppose that all the

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reputed beneficial effects of mineral waters were the result only of extravagant or interested imaginings.

To obtain the greatest possible benefit from the springs, it is absolutely essential that the patient first consults his regular family physician who makes a careful diagnosis, then if a change of scene and a course of treatment at some spring be truly advantageous to the patient, let the physician, who is certainly the most competent to advise in such matters, recommend the resort best suited to the case, or send the patient to consult some physician who has paid special attention to mineral waters and their uses. In this connection I have found that if mineral waters and the hygienic *régime* recommended be used as auxiliaries to the regular internal treatment, the best results may be hoped for. Once at the springs the patient should follow implicitly the directions of the resident physician, who, if armed with a personal letter from the patient's regular physician can prescribe wisely and at once.

The indiscriminate use of mineral waters, either for drinking or bathing purposes can not be too strongly condemned, for while they look bland and harmless, they are potent therapeutic agents which may accomplish much good if judiciously employed, but may also do much harm and may be followed by serious if not fatal results in careless hands.

The climate in California is conducive to the highest excellence in mental activity and physical strength. When an individual contracts a disease—rheumatism for instance—which requires several weeks for a complete cure, he becomes restless and eager to follow his vocation. The result in many cases is, that as soon as the patient is able to walk at all he begins the continuous rush of business and neglects his disease, which gradually lapses into a subacute or chronic state. In this condition, perhaps, he goes to the springs. Here the same restlessness characterizes the average Californian, and, indeed, the majority of American patients. He will "rush" the treatment. If one glass of water be prescribed three times daily, he will take half a dozen glasses as many times a day. If one sulphur-water or mud-bath be prescribed, once in three, or once in two days, he will want to take it two or three times daily in order to hurry up the treatment. This is not an overdrawn or an individual instance. Resident physicians have repeatedly informed me of the difficulty experienced in keeping patients within due bounds, and in more than one case this rushing and unauthorized self-treatment has resulted fatally in less than one week's time. Therefore, let patients who go to the springs, be thoroughly examined and their diseases carefully diagnosticated. Let the intelligent physician send his patient to the springs best suited to the individual case, and while there let him drink the waters, use the baths, and follow the *régime* directed by the resident or supervising physician. This plan, with judicious internal medication promises the best results.

THERAPEUTIC ACTION OF MINERAL WATER.

The specific action of mineral waters must depend upon the chemic ingredients they contain. Mineral waters, as a rule, are well borne by the stomach. They are readily and rapidly absorbed, carrying the ingredients which they hold in solution in the most minute form of subdivision into the circulation. By the use of mineral waters much larger quantities of fluid also are taken which assist in distending the minute ramifications of the capillaries, thereby assisting the removal of morbific products of chronic congestion or inflammation. Mineral waters act on the peripheral nervous system stimulating the circulation. They also act as simple diluents, flushing out the renal and chylo-poetic viscera, diluting the fluids of the body and assisting elimination. The carbonic acid gas which nearly all of the mineral waters contain, is very grateful to the gastro-intestinal mucous membranes. It enters the system charged with mineral particles and presents them to the mouths of the absorbents in a highly diluted condition. The gas promotes absorption by its tonic

and stimulating action on the nervous and vascular systems. This would seem to explain why the fractional part of a grain of peroxid or carbonate of iron, finely subdivided and largely diluted with water, and an abundance of gaseous acid may exercise a greater influence on the system on account of its rapid absorption by the stomach and intestinal absorbents than many times more of the pharmaceutic product which has first to be dissolved, diluted and subdivided by the gastric juice previous to absorption. It is of common observation that the stools rapidly become dark after the exhibition of ferruginous salts because the iron is not absorbed. One-tenth of a grain of iron in solution in a carbonated mineral water will accomplish as much good as ten grains taken without a suitable vehicle, simply because very little of it is absorbed.

SUMMARY.

1. Carbonated and chalybeate mineral waters are, as a rule, easily borne by the stomach.
2. They stimulate digestion.
3. Accelerate absorption.
4. Improve capillary circulation.
5. Assist in the elimination of morbific and waste material.
6. Act as diluents.
7. Besides exerting a more or less specific action on different diseases according to the mineral ingredients of the water.

The diseases which I have found to be most benefited by mineral waters are: Atonic and catarrhal dyspepsia, hepatic and splenic engorgement, atony of the bowels, flatulence and chronic constipation, inactivity and congestion of the kidneys, irritability and chronic inflammation of the bladder, chronic malaria, hydremic conditions of the blood and weak circulation, chronic articular diseases such as rheumatism, rheumatoid arthritis, gout, synovitis, glandular enlargement, blood-glandular diseases, scrofulous, syphilitic and cutaneous contaminations, etc.

It is needless to remark that each disease requires a different *régime*, different mineral waters and different internal and external medication. (The consideration of mineral water and mud-bathing has been omitted for a future article.)

With the caution given relative to a careful diagnosis, proper internal medication and the selection of the special springs or mineral water which is *suitable* for the individual case, a patient sojourning for a few weeks or months at some of our California springs will accomplish much toward the alleviation and eradication of his disease. The entire change of his habit of living, the pure wholesome food with plenty of fresh, pure, ozonized California air are auxiliaries which, with our California mineral springs have restored many broken-down, overworked and diseased individuals to health, strength and future usefulness.

603 Sutter Street.

THE IDENTIFICATION OF THE TYPHOID FEVER BACILLUS.

BY EDWIN O. JORDAN, PH.D.*

CHICAGO.

Few points are of more fundamental importance to the practical bacteriologist than the ability to identify quickly and with unfailing certainty a given pathogenic organism. In the early days of pure cultures the work of describing accurately and exhaustively the different "species" of bacteria was entered upon with a confidence perhaps unwarranted. There was a general, if not fully expressed feeling, that certain characters sufficed to distinguish unmistakably a particular species, and that these characters when once determined were safe recognition marks. From this comfortable initial position we have in several instances been forced to recede. This withdrawal of our reliance on characters once believed to be "diagnostic" has been most marked, perhaps, in the case of the specific organism of typhoid fever.

The Eberth-Gaffky bacillus, as is well known, has been found to bear so close a resemblance to bacillus coli communis, a common saprophyte and a normal inhabitant of the intestine of many animals, that several investigators (Rodet and Roux, Arloing, Malvoz) have been led to conclude that the two organisms are substantially identical. The considerable variability of the typhoid bacillus, together with the existence of numerous intermediate "varieties" have helped to give color to this view and have certainly augmented the difficulty of identifying the typhoid fever germ.

The *morphology* of the typhoid fever organism is far from distinctive, all the salient morphologic characters being repeated more or less closely by the colon bacillus or by some of the intermediate varieties. The typhoid bacillus, for example, when grown in bouillon, shows a tendency to form long threads, a trait that is not ordinarily shared by the bacillus coli. I have, however, through the kindness of Dr. A. P. Ohlmacher, recently come into possession of a culture of the latter obtained from an old peritonitis, which is not only actively motile, but grows out into long threads precisely simulating the typhoid growth. Some investigators[1] have considered that the larger number of flagella borne by the bacillus typhi suffice to distinguish it from the bacillus coli group, but this view is by no means generally accepted. Most investigators have been unable to recognize a constant difference in this respect. My own observations on this point have not led to any constant result. The age of the culture and character of the culture medium, as well as certain undetermined causes, bring about considerable variation in the number of flagella. It is interesting to compare the statements made by those who regard the number of flagella as diagnostic. According to Luksch, bacillus coli possesses from one to at most three flagella, while the bacillus typhi has from eight to ten. Nicolle and Morax[2] state that the maximum in the bacillus coli is ordinarily six, but may be "exceptionally eight to ten," while in the bacillus typhi ten to twelve are frequently found. Moore[3] in his careful study of the character of the flagella borne by certain members of this group has reached a negative conclusion: " . . . the number of flagella on the individual bacteria vary in the different fields in the preparations from the same species as much as in those from different species, excepting in the maximum numbers; this is also true of the length of the flagella." . . . "Until further facts are determined, the character of the flagella will not furnish a means for specific differentiation."

The typhoid bacillus itself exhibits great varia-

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1 *e. g.* Luksch, Centralbl. f. Bakt. xii, 1892.
2 Annales de l'Inst. Pasteur, 1893, p. 554.
3 Wilder Quarter-Century Book, 1893, p. 339.

bility in form under changing conditions. Slight fluctuations of temperature, culture media of varying composition and of different degrees of alkalinity give rise to considerable variations in shape and size, while one and the same culture, examined at different ages, is sure to afford a wide range in form and dimensions. Gasser[4] is so impressed by its variability in form, that he declares that no organism is so polymorphous as the typhoid bacillus, even when it is grown in the same culture medium. The changes in structure induced by change of habitat, food supply, etc., are familiar to all students of the higher organisms and are phenomena coming under the daily observation of bacteriologists.[5]

It is to-day, therefore, generally admitted that the morphologic characters of the typhoid fever organism are not of diagnostic value, and do not permit us to separate it surely from the common colon bacillus.[6] In all the higher organisms, both plant and animal, differences in structure are the generally recognized basis for classifying organisms into such groups as species and varieties. Physiologic traits can not with safety be utilized for this purpose, since they are more likely to undergo sudden and radical change. Changes in function usually precede and in large measure determine changes in structure. Examples of the diversion of physiologic activity from one channel into quite a different one will occur to every one. Such being the case, the fact that we are at present forced to base our diagnosis upon the physiologic characters of the typhoid bacillus does not at the outset inspire us with great confidence in the soundness of our method. Since morphologic characters, whether from the inadequacy of our microscopes or the low structural differentiation of the bacteria, fail to afford us means of diagnosis, we are compelled to fall back upon functional characters confessedly liable to great and sudden change.

If we examine, for example, the question of motility, a physiologic character of considerable importance, we find ourselves beset with difficulties. The nature of the culture medium and the age of the culture have here full play as disturbing influences and may lead to very discordant results. The typical typhoid bacillus is actively motile, while the colon bacillus is usually described as non-motile. Under certain circumstances, however,—at present imperfectly understood—the typhoid bacillus does not exhibit movements of translation. According to Germano and Maurea, the presence of acid in the culture medium is one of these perturbing factors. Furthermore, it is well known that the power of motion is one of the characters frequently parted with by many bacteria during a long-continued series of transfers. Every one who has had occasion to isolate species from water and soil has observed species which are motile when first examined, but which lose the power of movement under prolonged artificial cultivation.

The lack of motility alleged of the bacillus coli rests upon a similarly inadequate basis. Escherich, indeed, to whom we owe the first description of the bacillus coli, describes this form as possessed of slow movement. I have not been able to satisfy myself as to the occurrence of really "slow" or "sluggish" movements among the members of this group The difference seems rather to consist in the proportion of individuals exhibiting any movement at all. Most coli-like varieties show in the hanging drop a whole field of motionless individuals, but, with continued observation, two or three active individuals may occasionally be detected. In *kind* of movement I have not been able to discover a difference between these forms and the typhoid organism. There are undoubtedly some "intermediate" forms, like the one I have noticed above, which are actively motile. We are not at present in position to assert confidently that a motile typhoid-like bacillus can not be a variety of bacillus coli any more than we are able to deny that a non-motile coli-like bacillus may after all be a modified typhoid germ.

It is to the existence of these "varieties" or "intermediate" forms, these *coli-ähnliche* and *typhus-ähnliche* bacilli, that the difficulties of diagnosis are due. Broadly speaking, these "varieties" of the typhoid bacillus resemble the latter in morphology and in their growth upon plates of nutrient gelatin; they form no spores and do not stain by Gram's method. The true typhoid bacillus has, however, been considered as separated from these varieties by its possession of certain well-marked peculiarities. The growth of this organism on potato was for long regarded as of diagnostic value, but confidence in this test was shattered by the work of Pfuhl and Kitasato. The failure of the "invisible film" as a final test has, however, never been more clearly demonstrated than in the recent discovery made during Kruse and Pasquale's studies on dysentery[7] of a *typhus-ähnliche* bacillus in pure culture from the liver. The bacillus grew upon potato exactly as the "typical" typhoid bacillus should do, and proved itself in other respects similar to the typhoid germ. Upon the other half of the potato, the real typhoid bacillus grew atypically. The newly discovered variety was more "typical" than the typhoid bacillus itself. Upon another slice of potato, however, on which the typhoid bacillus grew typically, the "variety" grew atypically.

Other physiologic attributes have, one by one, met with a similar fate. The negative-indol reaction put forward by Kitasato, the cultures in colored media,[8] the production of acid or alkali,[9] the coagulation of milk have all failed as definite and final criteria. A coli-like bacillus that forms indol in a peptone solution containing no sugar may indeed be definitely excluded from the typhoid group, but the inability of a *typhus-ähnliche* bacillus to produce indol in no way assures us that we are dealing with the genuine typhoid organism. Similarly, inability to coagulate milk is not diagnostic. Coli-like bacteria that produce indol and coagulate milk are certainly not typhoid bacilli, but typhoid-like bacteria that are unable to bring about either reaction can not, on this ground alone, be unmistakably identified as true typhoid germs.

Few bacteriologists who have studied the bacteria of this group have failed to meet with these intermediate varieties. J. M. Flint in some yet unpublished

[4] Archives de Méd. expt. Jan. 1891.

[5] The changes induced in lowland plants by removal to higher altitudes is a case in point. The aerial shoot-axis becomes dwarfed and the subterranean parts, on the other hand, undergo an exaggerated development, while plants of an annual habit in the plains become perennial at the higher elevation. Goebel adds significantly: "These transitory changes answer in general to the characteristic *hereditary* peculiarities of Alpine plants."

[6] Cf. *e. g.* Germano and Maurea. Beiträge z. patholog. Anat., xii, 1893, p. 494.

[7] Zeitschr. f. Hygiene, xvi. 1894, pp. 59–62.

[8] Cf. Sanarelli, Annales de l'Inst. Pasteur, June, 1894, p. 390.

[9] Cf. Péré, Annales de l'Inst. Pasteur, vi. 1894.

studies upon the distribution of bacillus coli, has discovered in the feces of the moose a bacillus resembling the typical bacillus coli in all points, except that it is unable to produce indol. I have recently obtained from the spleen of an individual, dead from typhoid fever, a pure culture of a bacillus which agrees with the colon bacillus in all respects, save that it does not coagulate milk even after prolonged growth, and does not grow in formalin bouillon.[10]

There is one test of this character, however, which has for some time stood on quite a different footing from the others and has been generally regarded as making it possible to exclude definitively these troublesome varieties. This physiologic character is the ability to ferment grape-sugar in a peptone medium. The typical typhoid bacillus is unable to perform this feat, but the typical colon bacillus invariably ferments the sugar with abundant production of gas. It has of late been pretty universally held that the "varieties" also could always be distinguished from the typhoid bacillus by the power they possessed of fermenting sugar. To the work of Theobald Smith is due our knowledge of this valuable characteristic. The most recent and thorough-going comparative investigations upon the typhoid bacillus and its allies—those of Germano and Maurea—support the position taken by Smith. These authors consider this test to be unfailingly diagnostic, and assert that, "*Dieser Charakter ist beständig und führt also sicher und schnell zur Unterscheidung des Typhus bacillus von den typhus-ähnlichen Bakterien.*" [11]

Fuller,[12] after frequent water examinations covering more than a year and involving more than twenty-four hundred species determinations, comes to the conclusion, "that there appear to be no other non liquifying bacteria in the water of the Merrimac River which do not coagulate milk and also produce a turbidity without gas, in the Smith test." Notwithstanding this weighty testimony, it appears that the glucose-fermentation test must now share the fate of the other "diagnostic" characters. Kruse and Pasquale, in their paper already referred to, find that three out of the twenty-five cultures of *typhus-ähnliche* bacteria examined by them, comport themselves like the typhoid bacillus, *i. e.*, produce no gas in glucose-agar. A similar but less satisfactory statement has been made by Roux and Rodet. There is little reason to doubt that the fermentation of glucose, although a very valuable aid in diagnosis, is no more a final criterion than the other physiologic attributes that have, one by one, been advanced as "characteristic," only to be overthrown by subsequent discoveries of intermediate forms. It might almost be anticipated on purely *a priori* grounds that further research will bring to light other *coli-ähnliche* bacteria unable to ferment glucose when put to the test.

One of the most recent attempts to establish a diagnostic character for the typhoid germ is that of Schild,[13] who uses formalin bouillon (1 to 7000) and finds that with pure cultures of the typhoid bacillus the bouillon remains perfectly clear, whereas with bacillus coli and its allies the fluid soon becomes turbid. My experience with this differential test inclines me to think that at best it will not rank higher than the negative indol reaction. I have referred above to one intermediate form I have studied which, in most of its physiologic attributes, is far removed from the typhoid organism, and yet which refuses to grow in 1 to 7000 formalin bouillon. I see no reason for regarding this as an isolated example.

At this point, I may be allowed to digress so far as to note the parallel afforded by the present condition of the means for diagnosis of the cholera vibrio. Here, as in the case of the typhoid bacillus, morphologic characters are not distinctive and the only recognition marks of the cholera germ are physiologic. There exist not only "varieties" of the cholera vibrio which have been found in outbreaks of cholera in certain localities, *e.g.*, the Massauah vibrio described by Pasquale, but also, precisely as in the case of the typhoid bacillus, there exist confusing water vibrios which simulate more or less closely the typical cholera vibrio. Bacteriologists have now to reckon with a vibrio danubicus, a vibrio berlinensis, and other cholera like organisms. Furthermore, in the light of recent research, the "cholera-red reaction" can no longer be regarded as characteristic of the cholera germ, and it is widely admitted that this much relied upon nitroso-indol color test is not a final criterion. The inoculation of animals is declared, in a recent interesting discussion of the question,[14] to possess even slighter diagnostic value than the nitroso-indol test. The single attribute of the true cholera vibrio which may at present be regarded as "characteristic" is the growth in gelatin, and this only when carefully controlled under certain definite and constant conditions.

The difficulties met with in identifying the typhoid bacillus are not, therefore, singular or unique; we have, however, for the moment, come to closer quarters with them than we have yet reached in the case of cholera.

The close similarity of the products of the common colon bacillus and the typhoid bacillus has justly attracted much attention. Cesaris-Demel and Orlandi [15] have studied in detail the highly remarkable correspondence between the metabolic products of these two organisms. These authors assert that in therapeutic and immunizing power the products show thorough-going biologic equivalence. They assert, moreover, that the serum of animals rendered immune against bacillus coli has both immunizing and therapeutic power against infection with the typhoid bacillus; the converse also being true. The recent revolutionary conclusions reached by Sanarelli [16] must lead to a suspension of judgment on this point. Sanarelli's prolonged studies upon experimental typhoid fever lead him to maintain that the intestinal disturbances in this disease are due to the action of the toxin and not to the local action of the typhoid bacteria. He finds that the intestinal glands can be protected against the action of the typhoid toxin without in the least impairing the general susceptibility of the animal. He asserts, moreover, that the alleged identity of lesions produced by bacillus coli and bacillus typhi does not in reality exist; that the lesions of the latter are invariably far graver, while those of the former are of a septic nature. Sanarelli is unable to establish the biologic equivalence of the two poisons but finds, on the contrary, that the toxins of the Eberth bacillus exert upon the mucous

[10] See page 933. [11] Loc. cit., page 528.
[12] Boston Med. and Surg. Journal, Sept. 1, 1892.

[13] Centralbl. f. Bakt. xiv, 1893; Zeitschr. f. Hygiene, xvi, 1894.
[14] Max Gruber. The Lancet, July 7 and 14, 1894.
[15] Cf. Centralbl. f. Bakt. Bd. xv.
[16] Annales de l'Inst. Pasteur, Nos. 4 and 6, 1894.

glands an action incomparably more energetic and severe than the toxins of the bacillus of Escherich.

While the close similarity of the colon bacillus and the typhoid bacillus is necessarily recognized by every one, and while it is admitted that there is no single criterion that absolutely distinguishes the latter from all of the perplexing "varieties" and "related forms," it is nevertheless maintained by many that the sum total of the morphologic and physiologic characters presents a true and unmistakable picture of the specific organism of typhoid fever. These investigators hold that, although the varieties may approach more or less closely to the typical typhoid germ, they may always be distinguished from it by at least some one character which is not shared by the genuine typhoid organism. One "variety," it is held, may differ from the typhoid organism only in its ability to produce indol, another solely in the glucose fermentation test, while still another differentiates itself from the "true" typhoid organism only in parallel cultures upon potato. It is said that it is the "true" typhoid organism alone, however, that is actively motile, produces no indol, is unable to ferment glucose, refuses to grow in 1 to 7000 formalin bouillon, and agrees in every other respect with the bacilli found in the spleen of a typhoid fever victim.

It will be observed that those who take this stand elude in a measure the very questions at issue. There is no doubt whatever that an organism is usually found in the spleen, mesenteric glands and other organs of an individual dead with typhoid fever, which may be distinguished from similar organisms by the methods above indicated. The question arises, however, as to whether this particular bacillus is the cause and the sole cause of typhoid fever. Can the "varieties" cause typhoid fever in favorable soil? Or, indeed, can harmless "varieties" be transformed under natural conditions into the "typical" pathogenic form? Neither of these questions has been satisfactorily answered. The fundamental point as to the invariable occurrence of the typical organism in the spleen of a typhoid fever victim can not as yet be regarded as definitely settled. The earlier investigators did not reckon with the then undiscovered varieties, and even the more recent work has not been of a very extended or rigorously comparative character. The fact must be kept in mind, moreover, that in the mesenteric glands, the liver, and the kidneys, the "varieties" are frequently found, while in the dejecta the "varieties," and even the typical colon bacillus appear frequently to far outnumber the typical typhoid organism. It might, indeed, be reasonably urged that the conditions environing the bacteria in the spleen tend towards a certain uniformity of type, that members of the coli-typhoid group under like conditions are forced into a like mold, and that the "varieties" may be as truly the cause of typhoid fever as the typical form. This argument is entitled to some consideration, but must be regarded as suggestive rather than convincing. Further research on this point is necessary.

In this connection, one aspect of the transformation question may be considered. It has not escaped notice that the typhoid bacillus differs from the colon bacillus chiefly in that it possesses the characters of a weaker organism. The former does not, a rule, grow so luxuriantly upon gelatin and agar as the latter, is unable to produce indol or ferment glucose, does not live so long in water, and is prevented from growing by a 1 to 7000 formalin solution. Some observers [17] have gone so far as to assert that the typhoid bacteria isolated from corpses are in all cases weakened organisms, and to declare that many of the most "typical" reactions result from the physiologic incapacity of the enfeebled germs.[18] It is interesting to note that one author (Blachstein) finds that healthy and virulent typhoid bacteria—isolated from dejecta—are able to produce in sugar-containing fluids a considerable quantity of gas and large quantities of lactic acid! I regard it as a fatal objection to the enfeeblement theory, however, that the typhoid bacillus is actively motile. I have observed active movement in a typhoid culture after nine months of artificial cultivation. This is the more remarkable since, as is well known, many bacteria speedily lose all power of movement under artificial conditions. The fact that the typhoid bacillus so tenaciously exhibits movement appears to me an insurmountable obstacle in the way of regarding it simply as a "weakened" variety of the ordinary nonmotile colon bacillus.

By far the most important aspect of the question is that bearing on the direct transformation, and it is unfortunate that the evidence at our command fails here both in abundance and cogency. The position taken by Roux and Rodet is well known. These observers [19] claim to have succeeded not only in so modifying bacillus coli that it lost the power of fermenting lactose, but also in imparting to a typical typhoid culture the ability to ferment lactose. A similar result is claimed by Vivaldi[20] who cultivated bacillus coli in gelatin mixed with filtered bouillon cultures of different water bacteria —*e.g.*, *proteus vulgaris*— and believes that under these circumstances bacillus coli can assume the characteristics of the Eberth-Gaffky bacillus. This transformation, however, was not permanent. One of the most interesting statements upon the transformation question is that by Malvoz as quoted by Chéron.[21] By passing the colon bacillus through successive cultures in bouillon to which a little carbolic acid had been added, Malvoz obtained a form showing the characteristics of the Eberth bacillus.[22] In all these reports of transformation experiments, however, the details are meager and unsatisfactory, and the conclusions reached by the authors are far from carrying conviction. The fact that bacillus coli can be made to lose such a property as that of indol production does not necessarily imply a nearer approach to the typhoid bacillus. The totality of the characters of the altered form may, it is possible, diverge more widely from that of the typhoid bacillus than does that of the normal colon bacillus.

There is a certain kind of evidence that bears more or less relevantly upon the questions considered. Such, for instance, is the statement by Denys and Martin [23] that their old cultures of the pneumobacilli show a striking approximation towards the typhoid bacillus, in that the pneumobacilli had lost the power of developing gas from glucose and lactose, while the growth on potato was hardly visible. It is unnecessary to dwell upon the suspicious association of bacillus coli and its varieties with certain disorders of the alimentary tract,[24] or to point out the frequent presence of these bacteria in the cadaver. [25] Agro [26] has

[17] Cf. *e.g.*, Hygienische Rundschau, 1893, p. 165.
[18] See also Modern Medicine and Bacteriol Review, 1894, No. 2.
[19] Le Bulletin méd., 1892, p. 865.
[20] Cf. Abstract in Baumgarten's Jahresbericht, 1892.

discovered the very interesting fact that the mixture of the cultures of bacillus coli and bacillus typhi abdominalis has greater toxic power than a similar quantity of either in pure culture, seeming to show that a symbiotic relation may exist between the two organisms. The mixture of sterilized cultures also possesses a greater toxicity than the sterilized cultures taken separately, but only up to a certain point. These facts, while bearing perhaps rather remotely upon the transmutation and substitution problems, are certainly suggestive.

We may summarize the situation in the following way:

1. There is usually found in the spleen and other organs of an individual dying with typhoid fever, a bacillus which possesses certain definite morphologic and physiologic characters.

2. This bacillus, when viewed in the light of all its characters can be distinguished from the other members of the coli-typhoid group. No single character, however, is "characteristic" and nothing short of an enumeration of all the known morphologic and physiologic properties of the bacillus is a sufficient basis for diagnosis.

3. There exists a well-nigh complete chain of varieties between the typical colon bacillus and the typi cal typhoid bacillus. Whether this represents ontogenetic as well as phylogenetic possibilities is still an open question.

4. The intermediate varieties, of which there appear to be many, resemble the typhoid organism very closely. It is still uncertain whether they are able to cause typhoid fever, or a disease resembling it, in man.

5. The cases of alleged conversion of one "species" or "variety" into another do not carry conviction and are susceptible of other interpretations than those advanced regarding them.

FADS AND FOLLIES I HAVE KNOWN.

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The present state of medicine is the result of a grand evolution and, like all achievements of the human mind, claims but an humble origin. Its progression has been marked by error and superstition from time to time, and even now, when it justly demands the highest rank, it is probably liable to the same change; for while we are certain that superstition must be eliminated, we are not so sure that grave errors may not be exposed by time and more patient investigation.

I propose to indulge in a temperate consideration of facts that fell under my personal observation in the early part of my career, eschewing those which seemed to have a basis of merit, but really may have tended to retard the progress of scientific medicine, some of which, even at this enlightened period, are seriously agitating our profession, and may hereafter be ridiculed and laughed at, like those I witnessed long ago.

In 1826–27 I had the privilege of attending a course of medical lectures at the Transylvania University, Lexington, Ky., where Dudley, Drake, Caldwell and others were holding forth to a class of 205 students from all parts of the South and West. It was remarkable that the school at Lexington, then only a first-class village, should rival the great institution at Philadelphia; but there was a fair reason for it—the fame of Drake, Dudley and Caldwell. Of these three champions, Drake, though indomitable, was the lesser light illuminating the sphere. He might have been greater had he been less peripatetic, for he was ever restless and inclined to change his base. He was a bold and generally successful practitioner, skilled in diagnosis, and well patronized by the people wherever he lived. Like many other doctors, he had hobbies, one of which I mounted and rode as long as I was in the field—in cases of dropsy, to give every other day in small but repeated doses, a combination of elaterium and jalap until active purgation was produced. Usually the fluid passed off in a few days, and then strong tonics were immediately employed. I confess, however, that the plan sometimes failed. Believing that all western people complaining of any disorder, were bilious, the Doctor seldom failed to unload the liver by a dose of comp. extract of colocynth and calomel; and of this I had some experimental knowledge, having once employed him to treat me for a headache induced by sitting up late at night reading by a tallow candle.

Drake's oratory was fervid but not eloquent, and as he rose to a climax the blood would mount to his face and forehead seeming ready to burst forth to relieve the tension, though ordinarily he was thin and pallid. Ten years afterwards he published a massive book chiefly interesting to Western practitioners, which I bought and read with little edification.

Caldwell having paid his debt of *in*gratitude to Dr. Rush at Philadelphia, his preceptor and early patron, by assailing his doctrines on every hand and all occasions for several years, and beginning to recognize the verdict of the physicians and people of that city against him, was easily persuaded to transfer himself to a distant region, to quiet his nerves and afford an opportunity of displaying his wonderful eloquence and erudition; hence the popularity of Transylvania in 1826.

Caldwell was born and reared in the brave and good old State of North Carolina in the mountainous western region near King's Mountain, where Tarleton's troopers bled. He belonged to a family distinguished for learning at that time and, if I mistake not, he was a nephew of the celebrated Caldwell so long President of the University of North Carolina at Chapel Hill, the alma mater of so many eminent men who went forth to dignify the councils of their State, while many emigrated to the West and South to build up democratic institutions there. His eloquence was much enhanced by the magnificent appearance of his person. Stalwart and gracefully proportioned, with handsome features beaming with intelligence, his splendid presence could not fail to prepossess any kind of an audience before a word was uttered; and even now, after the lapse of three score years and nine, a pleasing sense of admiration seems to thrill me, as my mind reverts to that old lecture room at Lexington, Ky. True it is that "music hath charms," but true it is also that it pales before the fiery waves of eloquence, the very witchery of language.

The legend in North Carolina of how Caldwell appened to become a physician at Philadelphia

[21] Union méd. 1893, No. 33.
[22] See in this connection Villinger, Archiv. Hygiene, xxi, 2, 1894.
[23] La Cellule, ix, 1893.
[24] See *e.g.*, Centralbl. f. Bakt. xii, 1892, p. 458.
[25] See Wurtz and Hermann, Archives de Med. expérimentale, iii, 1891.
[26] Annales de Micrographie, vi, 1894.

runs thus: His father was a large stock-raiser, who annually drove cattle to either Charleston, Richmond or Philadelphia; and when Charles had graduated and returned home, he was on the eve of starting off with a large drove to Philadelphia; but falling unwell, he was compelled to substitute Charles in his place, who was more than willing to engage in such a spree. At that early time (1795) the Piedmont hills and valleys from Alabama to New York were covered thickly with wild pea vines, the best of food for cattle, so that the long trip cost nothing but time, as there was no food to buy nor rivers to cross. Having sold the beeves, Charles fobbed $1,500 of the proceeds and sent home the drivers, with the balance inclosed in an affectionate letter to the old gentleman, advising him to will his property to the other children, which doubtless he did. In the meantime he became a private pupil of Dr. Rush, to lay the foundation of his career, I might have said his brilliant career, for it was brilliant, indeed, until green-eyed envy wreaked its vengeance upon him in old age.

Benjamin Winslow Dudley, the great Western surgeon of that day was not over-estimated. Such a man would have been famous in London or Paris. Among physicians of the time, his fame seemed to rest on his remarkable success in lithotomy, but that was a mistake, for he was truly great in everything pertaining to medicine or surgery. He was so notorious for the treatment of chronic diseases, that patients came to him from all parts of the South and West; some living in quarters in the village and others boarding in the country, whom he visited on horseback, for he was never seen in a vehicle. I saw much of his practice through the favor of his principal private student, who had been my classmate in North Carolina. In the treatment of chronic diseases, his general plan was by diet and alteratives, following Abernethy, the patients being usually confined to skimmed milk and corn-bread entirely. His lectures were delivered in a conversational tone, but always interesting, as evidenced by the profound attention of the class. He went to Paris and London for his education, where he remained for several years as a private pupil of Abernethy.

Dudley was a small man of middle age, about five feet six inches high, having a large round head and ample forehead, with auburn hair encircling a bald crown; a gray eye stern and indicative of determination. His nose was not large, and his upper lip, being thin and slightly drawn, gave him a cynical look not in accord with his true character. When about to perform a capital operation, he would always appear ghastly pale as he followed the men bearing the patient into the amphitheater; but when operating, he was as firm as an Irishman carving a hog, and his work was quickly done. He firmly believed that his successful lithotomy was owing to dietetic preparation of patients—skimmed milk and corn-bread for a week before operating, and nothing else.

Drake having resigned in 1827, Cook from Western New York was installed in his place and soon became notorious by propagating a pill called "Cook's Pill," and the startling theory of giving enormous doses of calomel for the relief of all bilious affections; and as everybody in the West and South at that time was supposed to be bilious, the pill had a marvelous run for years. For some reason, perhaps the dignity of his professorship, he failed to take out a patent for the pill, and allowed its ingredients to be known—aloes, rhubarb and calomel! The calomel administered was in doses of 40, 60, 100, or 150 grains according to the biliousness! But it had a run of only two or three years in such large doses. While the fad continued, little else was relied upon in the treatment of remittent fever by those who fell into the rage. The liver and portal circle bore the brunt of many a siege and could not be reduced effectually by anything but heroism. Milder modes of treatment went sneeringly by the name of "pop-gun practice." And what was the consequence of this terrible hallucination that went forth from Transylvania?

We all know how prone young graduates are to adopt the theories and practice of favorite teachers, especially when urged with captivating diction. Perhaps all young doctors are thus trammeled until their minds are enlarged by experience. For my part, I remember that, whenever a sleek, beautiful hobby came along I was apt to mount him, and away we went in a canter, but would not go far until he would kick up and throw me off; then I would have to swap him for a gentler nag, and so on, until finally I found myself trotting along on an old Conestoga that neither kicked nor dodged, and never flew the track.

Swarms of these young graduates galloped away from Lexington every spring, with glaring sheepskins in their saddle-bags, printed in a dead language which perhaps many could not read, to settle down at every cross-road in the great West and South, armed with a quart bottle of calomel and a gallon or two of Cook's pills to cleanse the liver and scour out the bowels of their trustful friends. And what was the result? Collapse and death, or constitutions broken down by horrible salivation, and loss of teeth for mastication. And yet this medical epidemic continued to rage for a number of years; but thanks to the Nestor of our profession at Chicago for his happy thought of establishing the AMERICAN MEDICAL ASSOCIATION the renaissance has come.

The furore of that practice was, however, a godsend to the homeopathists, for they soon sprang up everywhere, laughing in their sleeves and fooling the people with their infinitesimals. The people actually seemed to be afraid of regular physicians, and in despair turned to the nearest and only help for relief, thus pinching the pockets of regular physicians and swelling the purses of the homeopathists. This seemed to be a timely retribution, serving to arrest careless and extravagant practice and promoting many ingenious and agreeable modes of administering nauseous drugs, indispensable in treatment.

In the meantime, some sharp fellow whose name, if I ever knew it, I have forgotten, witnessing the good luck of the homeopathists, conceived the idea of supplanting both parties by establishing what he called eclecticism, thereby hoping to fill the pockets of himself and comrades; but the success of that sect has not been material, nor do the homeopathists seem to be holding any sway under the shadow of vast improvements lately made by the regular profession; neither does it appear that medical art or science has ever been advanced by their boastful efforts while looking for dimes.

It has been only a few years since we began to hear of Legislatures regulating the practice of medicine. Many efforts were made from time to time, but the

bills were uniformly rejected because the people were not ready for the innovation and, therefore, unwilling to protect themselves; so every man was a doctor if it suited his fancy. If the patient got well in spite of remedies, the doctor was regarded as a savior by patient, friends and himself, but if he died, then—everybody dies. From 1830 to 1840, the South and West were entirely overrun by a gang of steam doctors calling themselves Thompsonians, a doctor of that name living in Western New York, being the founder of the humbug. His disciples were furnished with a little primer containing twenty or thirty pages, and not more than three by four inches in size, containing directions for administration of the roots and preparations recommended; and any farmer or business man in the country was at liberty to invest $10 for one of these primers and become a full-fledged doctor. Many embraced the opportunity, for there was one or more in every neighborhood. The armamentaria consisted of herbs, but was chiefly confined to powders numbered from 1 up to 6; No. 6 being the remedy mostly employed, and containing pepper of the most fiery kind. The great remedy, however, was lobelia to break up intermittent fever and root out all obstinate diseases that resisted the powders. If the emeto-cathartic of lobelia failed, then it was to be heroically repeated till what they called "alarm" came on, which was really a true collapse. The weaker powders were principally used in chronic disorders.

And here I must risk violating the proprieties by relating an anecdote by way of illustration: In 1835, and afterward, I was a citizen of South Alabama, where saloons prevailed, but then they went by another name, doggeries, on account of their dinginess, odor and other unkempt qualities. A young man, Keloo, was tapster in one of these. He lived on the margin of his income so as to lay up money for a rainy day, and when the steam system began to fascinate the population he too, fell a victim to its charms. Suddenly he retired from the doggery, took quarters at the Arrington House dressed up in broadcloth, silk hat and boots, and, purchased a fine horse and equipments; then he rode out of town and back again, like any other gentleman; after a few weeks, his card appeared in *The Voice of Sumter*, emblazoned with "Doctor Keloo" at the top. In less than a week after that, a negro man came galloping into town inquiring for Dr. Keloo, and soon the Doctor was mounted and riding around the public square, followed by the negro, for the purpose of asking for his mail, buying a few cigars, leaving orders, etc., exciting every one's curiosity as to where he was going. Capt. Paine, the sick man, was a very respectable planter living eight miles up the Sucarnoochee, who had been infatuated with the steam-fad, and reading Keloo's card, had sent his man for him. Next day the Doctor returned at 12 o'clock, and rode around, chatting as he had done the preceding day. On being asked how Paine was, he replied: "Oh, I fixed his flint;" and so he did, for at 5 o'clock P.M. a white man came in to buy a winding sheet for poor Paine. The jeering and laughter was more than Keloo could endure, so he disappeared, but where he went is yet a mystery.

I will venture another tale of woe: A year or two after Keloo's extinguishment, Dr. P—— appeared, He seemed to be a gentleman and I called on him. not suspecting heresy, but I soon discovered my mistake, for I saw lying on his table a large book lately published by Thompson on the steam system, so-called. However, my visit led to further acquaintance, as he was a respectable man, and had respectable friends in the community, preaching occasionally in the Methodist church. One morning in September, on going to the country, I rode by his door as he sat basking in the sun on the steps, looking quite pale, and I halted to ask what was the matter. "Oh, I've had a couple of chills," said he, "and another will try to tackle me at 10 o'clock to-day, but I'll be ready for it this time." "I suppose you will head it off with quinin," said I. "Quinin!" he exclaimed derisively. "No, I'll take lobelia and a plenty of it, and not fool with it as I did yesterday;" and so he did, for in passing by on my return at sundown I learned that he was in collapse and nearly dead. The "alarm" happened to be in earnest that time. These and many other similar cases came under my immediate observation, but such were constantly occurring all over the country.

Regular practice, at and before that time, in some respects was equally culpable with that of the steamers. Venesection *ad deliquium animi* in fevers was one practiced by some of our craft, drawing off the pabulum of life when most needed. But a majority were opposed to that heroic measure. Although the *vis medicatrix* was acknowledged and frequently discussed, no such inherent force was trusted, for the doctors took the whole responsibility in treating a case; hence strong revulsions of every kind characterized the practice. Even Europe, with its ages of culture and refinement, seemed to fall into these errors. Rasario, a celebrated professor at Milan, I believe, conceived the idea of curing all violent inflammations by heroic doses of tart. emetic repeated until tolerance is established, the whole amount given sometimes reaching twenty-eight or thirty grains. About 1830, the *American Journal of the Medical Sciences* was ventilating the plan over here, and I began to look out for an opportunity to give it a trial; I soon met with a suitable case. A youth, 17 years old, living in the country fifteen miles from town, had a violent attack of pleurisy, which was neglected for several days until the parenchyma of the lungs was involved, and he seemed to be in the last stage of pneumonia. His physician had given him up and I was called. Believing the case hopeless, I concurred with the doctor and was about to leave, when the father implored me to resort to any means, however desperate. I alluded to and explained the Italian practice, and then he cleared me of all responsibility. I gave three grains every forty minutes, until he had taken twenty-one grains and fallen into collapse. Then I ceased, resorting to sinapisms, bottles of hot water around his body, etc. After several hours he finally reacted, with scarcely a vestige of pneumonia left. After that I treated another case of rheumatism attacking the dura mater with complete success, and one more of pneumonia, which I lost. That mode of practice, founded on repulsion, which is a legitimate principle of therapeutics, should not be entirely condemned, for there may be cases curable in no other way.

In viewing the past, we observe that there was a reason for that long-continued war upon the portal circulation by regular physicians; the ridiculous practices of steam doctors and the like absurdities of the age. The fact that medicine was not an exact sci-

ence gave license to wild theoretic speculation, leading to the adoption of empirical means to ends, and palliating most absurd errors of practice. But while all that confusion was in progress, Brown-Sequard, Bell, Marshall Hall and a few other savants of our profession were busily engaged in prying into the mysteries of the nervous system and laying a firm foundation for physiologic medicine, by which our art was made sure, and methods of practice simplified and placed on a scientific foundation. All these worthy pioneers in the field of neurology have passed away now, leaving their names already budding in fame to blossom out and reach remotest posterity.

In regard to the antitoxin theory now agitating the public mind and denounced by some physicians as a fad, we should be lenient in criticising the microbe theory of disease, for the reason that it seems to be proving its legitimacy as it goes on. If the Jennerian theory in regard to the antitoxin power of vaccine has been amply sustained in smallpox, how can we deny the sound efficacy of other similarly modified forces in relation to other constitutional diseases? Certainly, it seems equally plausible. And what is more, the inference leads to the conclusion that all constitutional diseases may be probably placed in the same category; and if so, the art of medicine is bordering on a revolution beyond anything of the kind in all the past. Let us wait and see.

ENLARGEMENT OF THE HEART WITHOUT VALVULAR DISEASE—WITH SPECIAL REFERENCE TO TREATMENT.

Read at the meeting of the Mississippi Valley Medical Association, held at Hot Springs, Ark., Nov. 20-23, 1894.

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If any excuse be needed for the presentation of this paper, it is found in the frequency with which individuals have consulted me of late, suffering from enlargement of the heart without valvular lesion. In looking over my record of cases for the twelve months ending Nov. 1, 1894, I find, that of the cases of heart disease there entered, 15.4 per cent. are under the diagnosis of idiopathic enlargement of the heart. Although open to the objection of vagueness and implied ignorance of the nature of the disease this term is, nevertheless, employed by Fraentzel because it embraces in concise form all those cases of hypertrophy and dilatation of the heart, unassociated with chronic endocarditis. On account of its conciseness, therefore, I shall make use of Fraentzel's term interchangeably, with that stated in the title of this paper.

Hypertrophy and dilatation are combined, the former predominating so long as compensation is adequate; but so soon as this becomes impaired, the hypertrophy begins to yield to dilatation until at length the latter assumes the chief rôle.

Post-mortem, these hearts are found to have greatly thickened walls, while the ventricles are dilated and the papillary muscles flattened. Fatty degeneration of the heart muscle is generally present, but in variable proportions and of too limited extent to make this the primary and main condition. Indeed, Fraentzel is of the opinion,that we shall have to abandon the notion of fatty heart as an independent and original affection. There is, he says,no direct or constant relation existing between the extent of fatty degeneration and the gravity of the clinical appearances. In the very cases under consideration, demonstrable degenerative changes are by no means always so extensive as to explain the progressive cardiac failure. If sclerosis of the aorta and coronary arteries be absent or but slight, the heart muscle may present very insignificant evidences of fatty or other degeneration. In cases in which the cardiac enlargement is associated with general arterio-sclerosis or chronic interstitial nephritis, there may be microscopic, if not macroscopic, evidence of degeneration. In most instances, however, particularly those due to excess in food and alcohol (Luxus consumption) or to overwork, one is often astonished at the meager *post-mortem* findings, and also at a loss to explain the cardiac weakness.

This form of cardiac enlargement affects individuals of both sexes but more commonly males. They are usually men of large frames with capacious chests. Indeed, the amplitude of the thorax is a characteristic upon which Fraentzel lays great stress. The great predisposing cause of ventricular enlargement is prolonged high arterial tension. If this exist in the lesser circulation of chronic pulmonary disease, the right ventricle will become enlarged; but the cases, commonly presented to the physician, manifest enlargement of the left ventricle with secondary increase in the size of the right. Prolonged arterial tension in the systemic circulation results from a variety of conditions; such as 1, chronic interstitial and parenchymatous nephritis; 2, arterio-sclerosis; 3, excessive consumption of food or drink; that is, excessive with relation to the amount of exercise taken; 4, severe manual labor together with abuse of alcohol; 5, prolonged overstrain of the heart, as in soldiers, particularly, associated with abnormally small arteries. Other factors also concerned in the production of idiopathic enlargement of the heart, are too uncommon to be considered here.

Whatever the condition, it is essential that it produce and maintain, for a long time, abnormal blood pressure within the arterial system.

Let us consider a little more in detail the third factor of Luxus consumption. In this condition more food and drink are habitually taken than are required for the needs of the system, moreover these individuals generally follow a sedentary pursuit and, as a consequence of their physical indolence, often take on a large amount of adipose tissue as they pass their fortieth year. This is one type of the individuals described by Fraenkel as very apt to develop arterio-sclerosis. Through the circulation in the blood of toxins, resulting from their mode of life or some other reason, there is abnormally high arterial tension for years. Whether associated or not, with degenerative changes in blood vessels or kidneys, this abnormal blood pressure increases the work of the left ventricle. To overcome the peripheral resistance the left ventricle becomes hypertrophied. Compensation is thus established. After a time, peripheral resistance becomes too great for the enlarged ventricle and dilatation sets in. But the enlargement is not confined to the left side of the heart. Increased blood pressure also exists within the pulmonary vessels and occasions corresponding enlargement of the right ventricle. So long as the nutrition of the cardiac muscle is adequate to the increased demands made upon it there are no symp-

toms and the cardiac enlargement escapes recognition.

In the case of laborers or other individuals performing severe manual toil, abnormal blood pressure results from the frequent repetition of muscular contractions. If to this be added the injurious effects upon the circulatory organs of the habitual consumption of alcohol and tobacco, there is sufficient explanation of cardiac enlargement and ultimate loss of compensation.

Time forbids a detailed description of the symptomatology of this disease. The patient first becomes conscious of something wrong in his chest, through either dyspnea or a feeling of fullness and oppression in the precordium. The dyspnea, which in the beginning generally consists of breathlessness on ordinary exertion may increase to habitual shortness of breath or in the severer cases to attacks of cardiac asthma. A sense of fullness or oppression in the heart is very common and like the dyspnea, occasioned by exertion. Cardiac pain is rare, but when present, usually dull and associated with a feeling of weight. In only one of my cases was angina pectoris complained of and in this one this symptom was so frequent and violent, as to render sclerosis of the coronary arteries highly probable. The pulse is always tense and accelerated, often small, and regular or irregular, as the case may be. The arrhythmia so frequently mentioned by Fraentzel was present in but a small proportion of my cases and only those in which cardiac dilatation had been present for so long a time as to be a chronic condition. The urine is usually diminished in amount, of high specific gravity and contains a small percentage of albumen; hyaline and granular casts may or may not be found. The liver is generally somewhat enlarged from passive congestion. The peripheral arteries often feel a little thickened, in some instances slightly tortuous but do not usually present marked sclerosis. Edema is generally absent in the earlier stages or perchance confined to slight puffiness of the ankles.

As the malady progresses, edema and other symptoms increase, until at length the disease presents all the phenomena of cardiac asystole from whatever cause. In the latter stages, cardiac asthma is apt to be particularly distressing.

These patients die, either from pulmonary edema or hypostatic congestion, due to progressive cardiac failure. Sudden diastolic arrest of the heart is not common, unless brought on by unwonted exertion.

The diagnosis does not usually offer much difficulty, and yet there are certain conditions that can easily prevent the recognition of the cardiac enlargement. The individuals most frequently presenting this disease are men with large, often round chests and correspondingly voluminous lungs. The left nipple is situated much further from the sternum than in those of average size, my records of measurements often showing it to be from four to four and one-half inches from the left sternal border. Ordinary methods of percussion show superficial cardiac dullness to lie between the left margin of the sternum and the left nipple. The capacious lungs conceal the deep limits of heart dullness, while the apex beat is neither visible nor palpable, partly because of intervening lung tissue and partly on account of the feeble impulse of the heart. For these reasons the practitioner is very likely to pronounce the heart of normal size. Fraentzel thinks, however, that the very fact of superficial dullness reaching to the nipple in these broad chests is sufficient to indicate an abnormally large heart and that this consideration, in connection with high arterial tension and perhaps thickened arteries, justifies the diagnosis of idiopathic enlargement. Although believing this theoretically correct, I am personally in the habit of depending on auscultatory percussion to corroborate the results of percussion after the ordinary method. By this means and the auscultation of the heart's sounds, I have frequently determined great general enlargement and located the apex beat far to the left of its normal site.

The heart sounds are usually free from murmur, the first at the apex being weak and valvular. The second aortic sound is usually accentuated in consequence of the increased blood pressure in the arterial system. The normal rhythm of the sounds may assume more or less that of the fetal heart sounds. In one of my cases, a female, a distinct jogging sensation was transmitted through the monoral stethoscope.

Finally, the abnormal pulse tension, the pulse rate, and the symptoms are of great diagnostic significance.

In the early stages, appropriate treatment may do much to stay progress, nay, even to remove much of the cardiac insufficiency. When compensation has once been fairly lost, the physician is powerless to do more than mitigate symptoms. In my opinion the first condition of successful treatment, and one which I always follow is to explain to the patient the injurious effects of persistent high blood pressure, and the importance of lessening it so far as possible. He is warned against still further dilating his heart through too great muscular efforts. Stair climbing, hurried walking, carrying of heavy packages are absolutely forbidden. Moderate walks upon the level ground and for distances too short to produce fatigue are encouraged. The feeling of oppression and fullness in the precordium is found to be a good gauge of the patient's endurance; since he is cautioned against ever walking so fast or far as to produce this uncomfortable sensation. As a matter of fact, more than one patient has told me he found a slow walk in the open air relieved the discomfort in his chest. Patients are also instructed to avoid distending the stomach by too hearty meals and beer or other effervescing drinks. For the same reason, the diet is regulated so as to prevent fermentation and consequent distension of the digestive tract by flatus. Most saccharin and amylacious articles are forbidden, therefore, as well as most uncooked fruits such as apples. Coffee and tea are allowed sparingly. The chief meal is at mid-day and if milk does not disagree, it must constitute the main portion of the evening meal. Alcoholic beverages, excepting malt liquors and champagne, which are absolutely interdicted, may be permitted sparingly or forbidden altogether according to circumstances in each case. My belief is that whisky in small amounts with the meals serves as a beneficial stimulus to both digestion and circulation. If the individual be corpulent, reduction of his weight is desirable but must be done cautiously.

Only woolen underclothing should be worn and all the clothing should be loose and comfortable, so as not to constrict chest and abdomen. Warmth of the body during cold weather is imperative lest the vasomotor constriction, produced by cold, increase

peripheral resistance and thereby also intra-cardiac blood pressure to an injurious extent. These patients should not attempt walking in the face of a strong cold wind. If possible, they should pass the inclement seasons in a mild equable climate. Massage and Swedish movements given skilfully and carefully, often prove highly beneficial. The immoderate use of tobacco and alcohol, sexual excess, fits of anger or emotional excitement of other kinds, too close and prolonged application to business are all injurious and should be explained as such to the patient.

As gentle exercise is beneficial, so on the other hand, prolonged rest in bed, so useful in certain valvular lesions, is injurious in idiopathic enlargement of the heart. Fraentzel explains this on the hypothesis that the heart muscle, being striated, degenerates under prolonged rest in the same way as does voluntary striped muscle after a long period of inaction. As I have stated elsewhere, this seems to me incorrect, since the cardiac muscle can never during life be subjected to complete repose. The injury resulting from absolute rest in these cases is explicable, I think on the following hypothesis:

In consequence of feeble contractions of the left ventricle, blood pressure in the aorta sinks, with corresponding rise of pressure in the two venæ cavæ. Moreover, absolute physical rest deprives the venous circulation of the aid derived from muscular contractions and deepened respiration. The work of maintaining the circulation is, consequently, thrown upon the already weakened left ventricle, which speedily succumbs under its increased labor.

This hypothesis is not at variance with the clinical observation of high pulse tension, since this is due to obstruction to capillary outflow and not to powerful contractions of the left ventricle. It is better, therefore, that these patients take rest for short periods, and for the purpose of recovering from fatigue occasioned by exercise.

We now come to the consideration of the medicinal treatment. Our first indication is to lessen the abnormal arterial tension which has led to the cardiac enlargement. This is best and most speedily accomplished by free catharsis. It makes but slight difference what purgatives are used, although they should not be highly drastic. I generally administer a full dose of calomel on account of the power possessed by mercurial preparations of diminishing arterial tension, even before producing alvine discharges. The calomel is generally followed in six or eight hours by a saline such as epsom salts or one of the laxative waters, Rubinat Condal, Hunyadi Janos or Franz Joseph. I not infrequently prescribe 4 ounces of the compound infusion of senna to be taken in one draught, which occasions profuse but painless watery stools. This remedy is specially recommended by Fraentzel. The effect on the pulse is often very remarkable, shown by greater regularity and volume. The sphygmographic tracings before and after the purge often exhibit striking diminution of tension. But this is not all; the dyspnea and sense of precordial oppression are usually lessened and sometimes wholly removed temporarily. It is well to keep down tension by the daily administration of a saline cathartic, but of less than the initial dose. The omission of the cathartic for even two or three days is generally followed by appreciable increase of arterial tension and of symptoms.

Digitalis and its congeners have no place in the therapeutics of this affection, unless weakness be confined to the left ventricle, the integrity of the right being preserved when moderate doses are useful. But if there be general weakness with dilatation of both ventricles these drugs are harmful. I have used them, and I have repeatedly seen them followed by increase of symptoms and arrhythmia or by irregularity of the pulse that previously had been regular. Why this is, I can not now attempt to explain, as it would require a lengthy discussion, both of the action of digitalis based on experiments of Openchowsky, and of the conditions of the circulation in this form of heart disease. The inutility, nay the harmfulness of digitalis in these cases is an empirical fact, the recognition of which has rendered my results far more satisfactory. Fraentzel employs cardiac stimulants, musk, castoreum and valerian, which not only spur on the jaded organ but favorably influence arterial tension. I have administered elixir of the valeriante of ammonia, nitroglycerin, whisky, tincture of castor, and in one instance even sulphate of atropia in doses sufficient to produce its physiologic effect upon the throat and pupils. Camphor and compound spirits of ether might be added to this list. The action of these stimulants is fugacious and therefore they must be exhibited frequently. Improvement is necessarily slow, and when any stimulant or combination of stimulants has demonstrated its ability to sustain or reinvigorate the heart's action its employment must be continued so long as required by the exigencies of the case. Nitrate of strychnia is also a powerful heart tonic, but must be given in full doses and when possible subcutaneously. Another useful and I believe positive heart tonic is the hourly inhalation of at least a gallon of pure oxygen.

Unfortunately there are many cases beyond the possibility of more than temporary relief. A most valuable stimulant in these, particularly if nightly attacks of cardiac asthma are distressing, is the hypodermic injection each evening of $\frac{1}{8}$, still better, $\frac{1}{10}$ of a grain of morphin combined with atropin, as in the ordinary hypodermic tablets. The dose must be small so as to secure the stimulant and not the depressing effect of the morphin. Given in this way, as Fraentzel says, a patient can often be carried along for weeks or even months after all hope of permanent improvement has been abandoned. Should dropsy finally set in and resist the use of cathartics and diuretics, such as calomel and perhaps also diuretin-knoll, it may be drained away by small incisions of the ankles or the use of appropriate drainage tubes.

The time limit of the papers necessarily forbids a more detailed discussion of the treatment, as well as the consideration of many questions that are suggested. I feel that I have been able to only outline what I believe to be the correct principles in the management of idiopathic enlargement of the heart.

Finally, three of my cases in which compensation was either threatened or not irretrievably lost, were treated by the Schott method of baths and gymnastics. The results were most gratifying and in one case truly surprising. The apex beat, previously neither visible or palpable, became fairly well defined, while appreciable retraction in the size of the heart took place and the patient regained ability to walk without much discomfort. This mode of treatment seems to me particularly adapted to this class of cases. It

unloads the over-distended heart, strengthens its contractions and dilates the arterial system; the very effects so desirable to produce in cases in which the heart is unequal to the abnormal blood pressure.

Appended are four sphygmographic tracings, of which Nos. 1 and 2 are from a man of 49, weight 260 pounds, suffering from general cardiac dilatation and chronic interstitial nephritis. The urine analysis showed in addition to abundant albumen and granular casts, blood, bile and indican. The first tracing was taken before treatment was instituted. The second was taken two days later after the administration of a vigorous purge and shows the beneficial effect of the same in this class of cases.

The third and fourth tracings are from a man of 60, who was beginning to manifest loss of compensation of an idiopathic enlargement of the heart. His chief symptom was precordial oppression. There was no apparent arterio-sclerosis and urinalysis revealed nothing more than chronic renal congestion. No. 3 was taken before beginning treatment and No. 4, five weeks later, shows the benefit derived from the management of this case, based on the principles laid down in this paper. It consisted, in brief, of gentle exercise by walking, daily catharsis, stimulants and regulation of the diet.

FIGURE 1.

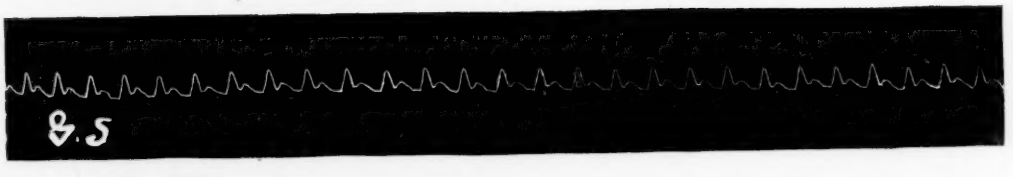

FIGURE 2.

FIGURE 3.

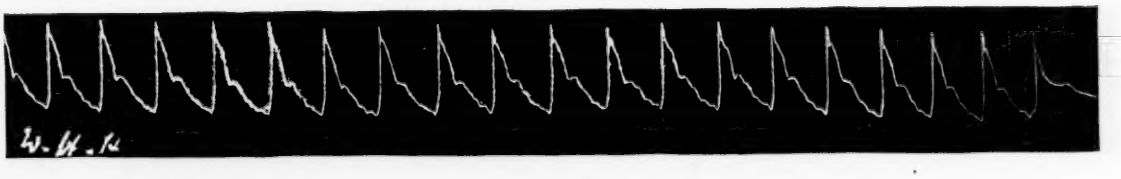

FIGURE 4.

CONCLUSIONS.

1. By idiopathic enlargement of the heart is meant: combined hypertrophy and dilatation, without valvular disease.

2. The primary condition is not fatty degeneration, which bears no definite relation to the clinical phenomena.

3. The disease results from prolonged high arterial tension and is observed most frequently in men with large chests and a tendency to corpulence.

4. Abnormal arterial tension may arise from excess in food and drink (Luxus consumption) and from severe labor, combined with immoderate use of alcohol and tobacco.

5. The diagnosis is not difficult, if one remembers that in these large chests actual cardiac enlargement may coëxist with a superficial precordial dullness, confined within the so-called normal limits.

6. The first indication for treatment is the lessening of the abnormal arterial tension, which is most readily done by means of cathartics and regulation of diet and exercise.

7. Digitalis is harmful, except in cases in which the weakness is confined to the left ventricle.

8. In cases of general cardiac enlargement and weakness, stimulants are called for, such as ammonia, nitro-glycerin, ether, valerian, etc.

9. The hypodermic injection of $\frac{1}{10}$ of a grain of morphin combined with $\frac{1}{200}$ of atropin is the most efficient stimulant in cases suffering from nightly attacks of cardiac asthma.

10. The Schott treatment, by baths and gymnastics, seems specially serviceable in this affection before compensation has become irretrievably lost.

ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854–1894.

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(*Continued from page 893.*)

CHAPTER II.

COMMUNICATION OF YELLOW FEVER THROUGH THE MOTHER TO THE FETUS IN UTERO; WITH OBSERVATIONS UPON THE COMMUNICATION OF SMALLPOX TO THE FETUS.

It is possible for yellow fever to be communicated through the mother to the fetus in utero.

I have had opportunity of illustrating this proposition by the following observation:

Case 4.—Illustrating the communication of yellow fever through the mother to the fetus in utero. Mary Heitman entered Charity Hospital, New Orleans, Louisiana, Oct. 1, 1871, with fever, and intense pain in head and back. On October 4 (third day of disease) patient presents all the symptoms of yellow fever; conjunctiva jaundiced, eyes injected, capillaries of mouth and gums congested, capillary circulation sluggish, surfaces of extremities mottled, nausea and vomiting. Patient suffering with uterine hemorrhage.

October 5 (fourth day of disease) the patient gave birth to a still-born fetus, apparently about four months old. The skin of the fetus presented a jaundiced yellow hue, and, upon dissection, the liver of the fetus presented the usual appearance of this organ in yellow fever. On October 6 this woman died, apparently from the immediate depressing effects of hemorrhage from the uterus and stomach. The pathologic lesions were those of yellow fever. The serum from the blood of the cavities of the heart presented the usual golden color, and contained bile. The colored blood corpuscles were altered in their outlines, some being swollen and others crenated. The muscular structures of the heart were yellow and brownish-yellow, softened and loaded with oil globules. The liver presented the characteristic yellow color of this disease, and liver cells were loaded with oil. The kidneys presented a yellow and yellowish-red color, resembling that of the liver and heart. Sections of the kidney, by Valentine's knife, carefully examined under the microscope, revealed the tubuli uriniferi, filled with granular fibroid matter, epithelial cells and oil globules. The urine taken from the bladder after death contained albumen in large amount, and urea in comparatively small amount. Under the microscope the urine was found to contain numerous oil globules, casts of the tubuli uriniferi, filled with yellow granular albuminoid and fibroid matter, and in addition to these, numerous free cells from the tubuli uriniferi.

Louis, in his "Anatomical, Pathological and Therapeutical Remarks on the Yellow Fever of Gibraltar of 1828," records the observation that the uterus of a woman, the wife of a soldier of the Fifty-third Regiment, who died with well-marked yellow fever, contained a five or six months' fetus, about whose neck were ecchymoses and whose skin was of a universal wine-lees color. The amniotic fluid appeared to have been colored by bile. In this respect the poison of yellow fever resembles that of certain contagious diseases, as smallpox. Thus instances have been recorded in which the fetus in utero has been attacked with smallpox, in consequence of the mother having been exposed to the contagion, without herself having the disease.

It was long held as a popular opinion, that if persons were insusceptible to the smallpox, either from infection in consequence of repeated exposure, or from inoculation with variolous matter, that they must have undergone the disease previous to their birth. Some medical men, on the contrary, have held that the want of susceptibility in such persons to the infection of the smallpox was owing to a peculiarity of constitution, which resisted the influence of the disease.

In support of the latter opinion, Mr. William Forbes[6] recorded the following case:

Case 5.—Mrs. Tagg, 22 years of age, when in the seventh month of her first pregnancy, had the confluent smallpox; from which, contrary to expectation, she recovered, went her full time, and was delivered of a fine child. Frequent solicitations were made for permission to inoculate the child, which was refused by its parents, from a supposition of its having had the smallpox previously to its birth. However, at the age of 12, the child was inoculated, and had the smallpox in the most satisfactory manner.

The two following cases, recorded by Mr. Forbes, on the contrary, tend to prove that those persons who have resisted the variolous infection, in every form, must have undergone the disease when in the fetal state:

Case 6.—Mrs. Alexander, of New Cross, had the smallpox when near the termination of her pregnancy; but the type was so mild that she was capable of pursuing her occupation as a washerwoman, although in daily expectation of being confined. The infant was born with the smallpox upon it.

Case 7.—Margaret, wife of William Crawby, residing at Camberwell, in her infancy had the smallpox severely, to which her countenance bore ample testimony. In March, 1788, she nursed her son Thomas, a child, under the confluent smallpox. She was at that time pregnant of her fifth child, and very near the end of her reckoning. These people being in low circumstances, had but one room, in which the whole family lived and slept. On April 1, at 3 o'clock in the morning, she was delivered of a girl. Three days afterwards the boy Thomas died, and on the same day Mr. Forbes was desired to look at some pimples upon the infant, which proved to be the smallpox, the marks of which she bore upon her face, even after attaining womanhood, and although frequently exposed to the smallpox, never contracted the disease.

The latter case proved that the fetus in utero is liable to the smallpox, from the influence of surrounding infection, although the mother was herself protected by a previous attack of the disease.

Mr. William Rait[7] recorded the following case, similar in some respects, and even more remarkable than that of Margaret's, just quoted:

Case 8.—During the prevalence of smallpox, and while Mr. Rait was attending such cases, a lady, who manifested no symptoms of smallpox, was delivered of a male child, upon whom the smallpox eruption appeared two days after its birth. The disease went through the course of genuine smallpox. Upon inquiry Mr. Rait ascertained from the mother of the lady (grandmother to the child) that the mother was born with the smallpox.

Dr. Laird[8] has described the following case of a pregnant woman, who was seized with smallpox:

Case 9.—About the end of August, 1805, she felt the motion of the child till the month of October, and on October 28 she was delivered of a dead child, which was thought to be of six months' growth. On the back, shoulders and side, particularly upon the upper parts of the thigh, where the integuments were perfectly sound, there were several pustular eruptions, with central depressions, strikingly characteristic of the appearances which distinguish smallpox. The fetus was placed in the museum of George's Hospital, and distinctly exhibited the characters of the eruption.

This history confirms the observation that the fetus partakes in many of the diseases of its parent.

Mr. Lynn published in August, 1786, the following decisive instance of smallpox in the womb:

Case 10.—In November, 1785, the wife of Mr. Ere, a coachmaker in Oxford Street, being then in the eighth month of her pregnancy, was seized with vigorous pain in the back, and other febrile symptoms. In two days' time the disease showed

[6] Cases of Smallpox in the Fetus, by William Forbes, Edinburgh Medical and Surgical Journal, Vol. iii, p. 307, 1807.
[7] Medical Commentaries, by Andrew Duncan Vol. iii, p. 318, 1789.
[8] Edinburgh Medical and Surgical Journal, Vol. iii, p. 155, 1807.

itself to be the smallpox, and though the pustules were of the distinct sort, yet they were uncommonly numerous. On the eleventh day they began to turn, and on the twenty-second day her labor took place, which, according to her reckoning, was a fortnight before the regular period; that is, when she was advanced in her pregnancy eight months and two weeks. The child, at the time of its birth, was covered with distinct pustules, all over its body. They did not appear to be full of matter till three days after, at which time I took some of the pus upon a lancet from one of the pustules on the face. With this lancet Dr. Lynn afterwards inoculated, on Dec. 2, 1785, a child of Mr. Charters, in Church Street, in both arms. On the 7th, the inflammation began to appear in each arm, and continued daily increasing, till December 11, when the child sickened, and was affected with all the symptoms which usually precede the eruption. On the 12th the sickness and fever abated, the pustules of the distinct sort of smallpox made their appearance, and the child having regularly gone through the several stages of the distemper, was perfectly well in three weeks.

Dr. Edward Jenner[9] entertained the opinion that the susceptibility to receive the variolous contagion always remains through life, but under various modifications and gradations from that point, when it passes silently and imperceptibly through the constitution (as is frequently the case with cowpox), up to that where it appears in a confluent state, and with such violence as to destroy life.

It is only under particular circumstances that any proof of the presence of smallpox can be adduced in those cases, in which it passes through the frame without producing eruption, or in any perceptible degree deranging the animal functions.

Such proof, however, as Dr. Jenner clearly exemplified by the following remarkable cases, is afforded by the obvious infection of the fetus before birth, communicated through the mother, herself being already secure from any visible occurrence of the disorder:

Case 11.—Dr. Edward Jenner was requested by Dr. Croft to vaccinate the infant of Mrs. W., a lady in Portland Place. The vaccine fluid, which was inserted fresh from the arm of another infant, produced scarcely any effect, beyond a little efflorescence in the part, which in a few days disappeared. When Dr. Jenner expressed his surprise at this, such an occurrence happening very rarely, Mrs. W. removed his embarrassment by the following narrative:

A few days previous to her confinement she met a very disgusting object, whose face was covered with smallpox. The smell and appearance of the poor creature affected her much at the time, and though she mentioned the circumstance on her return home, she had no idea that her infant could suffer from it, having had the smallpox herself when a child.

During a few days after its birth, the little one seemed quite well, but on the fifth day, it became indisposed, and on the seventh the smallpox appeared.

The pustules, which were few in number, matured completely. Dr. Croft, who attended her, being curious to know the effect of inoculation from one of the pustules, put some of the matter taken from one of them into the hands of a gentleman eminently versed in the practice, which produced the disease correctly. Mrs. W. was not sensible of any indisposition from the exposure, nor had she any appearance of the smallpox.

Another case, similar in its general character to the above, was communicated to Dr. Edward Jenner, by Mr. Henry Gervis, a surgeon of eminence at Ashburton, in Devonshire.

Case 12.—Mr. Gervis says: "The smallpox having appeared in the village of Woolson Green, about three miles from Ashburton, on May 6, 1808, I vaccinated a poor woman, the wife of James Barkwell, who was in the last month of her pregnancy. Her three children had been inoculated the preceding day with variolous matter, by the surgeon who attended the poor of the parish, and who had very properly declined inoculating her also, from her particular situation. I made two punctures in each arm, each of which fortunately succeeded, and she regularly passed the disorder, complaining only on the tenth and eleventh days, when the areola was most extended, as usual. I saw her very frequently during the progress of the disorder, and once or twice after its complete termination. I therefore can speak positively, that during that time she labored under no symptoms but what are connected with the cowpox. From this period she continued perfectly well, and on Saturday the 11th inst., she was delivered of a female child, having at the time of its birth many eruptions on it, bearing much the appearance of smallpox, in the early stages of the disease. This event happened five weeks after her vaccination, and one month after she had been exposed to the variolous infection of her own three children, and that of several other persons in the same village. On the 14th I visited the child again, when I found the eruptions had increased to some thousands, perfectly distinct, and their character well marked. . . . To put the matter beyond all doubt, I armed some lancets with virus, and produced the smallpox, by inoculating with it. In addition to the circumstance of the mother conveying the variolous infection to her unborn child, without feeling any indisposition from its action in her own constitution, I must remark, that there can not be a stronger proof of the efficacy of vaccination than this case afforded."

Dr. Jenner, without producing more examples, of a similar description, though he affirmed that many were before him, observes that a fact, not unlike the preceding, fell under the observation of Dr. Mead, who, in his discourse on the smallpox (Chap. iv., p. 337, 1772), relates the following case:

Case 13.—A certain woman who had formerly had smallpox, and was near her reckoning, attended her husband in the distemper. She went her full time, and was delivered of a dead child. It may be needless to observe that she did not catch it upon this occasion; but the dead body of the infant was a horrid sight, being all covered with the pustules, a manifest sign that it died of the disease before it came into the world.

From such examples, Dr. Jenner[10] concludes that the smallpox virus may affect the human frame, even to its inmost recesses, although apparently secured from its effects, and yet give no evidence of its presence, by exciting any perceptible disorder.

In 1749, Sir William Watson[11] published the following case:

Case 14.—A woman far advanced in pregnancy, who had labored under the smallpox a long time before, who, during this pregnancy, performed the duty of a nurse to her servant in the natural smallpox; and in a month after this attendance, was brought to bed of a child that had about forty scars upon its body like those from the smallpox. This child (a girl), and her brother, were afterward inoculated at the same time. The brother had inflammation of the parts inoculated, eruptive fever and eruptions, as in the most ordinary smallpox; and the girl, born with the pits on her skin, had inflammation and suppuration in the parts inoculated, in the same manner as her brother, and a general indisposition, as in the undoubted cases of smallpox, but no eruptions.

Sir William Watson concluded that this girl had gone through the smallpox before her birth, and Camper and Van Swieten coincided with him in this conclusion.

It was established by actual experiment, that pregnant women were not fit subjects for inoculation, as the smallpox often caused miscarriage, and what is remarkable, when the disease proved mild to the mother, it was sometimes fatal to the child.

The preceding facts, illustrating the communication of smallpox to the fetus in utero, might be greatly enlarged by other observations, as those of Bartholini, 1657; Mr. Durham, 1713 (Phi. Trans., Vol. xxviii., p. 165); Dr. Mortimer, 1749 (Phil Trans., Vol. xlvi., p. 233); Dr. Mead, 1747, in his Treatise de Variolis;

[9] Medico-Chirurgical Transactions, Vol. i, London, 1815, Third Ed., pp. 271–277.

[10] Medico-Chirurgical Transactions, Vol. i, London, Third Ed., pp. 271–277, 1805.

[11] Philosophical Transactions, Vol. xlvi, p. 239.

Dr. Rosen von Rosenstein, 1756; Baron Dimsdale, 1766, Treatise on Inoculation; Mr. Wastall, 1776 (Phil. Trans., Vol. lxx., p. 128); Dr. Wright, 1781 (Phil. Trans, Vol. lxxi., p, 372); Dr. Bland, 1781 (*London Medical Journal*, Vol. ii., p. 205); Mr. Roberts, 1784 (*Medical Journal*, Vol. v., p. 399); Dr. Hagarth, Dr. Woodville, Dr. Ford, Mr. Jones, Dr. Hossack; Dr. George Pearson, 1794 (Medical Commentaries, by Andrew Duncan, Vol. ix., Edinburgh, 1795, p. 213); Dr. George Pearson gives some important cases of equal interest with those recorded above; Alexander Munro (Observations on the Different Kinds of Smallpox, Edinburgh, 1818, p. 626).

We have thus brought together a number of important observations, scattered through various medical and scientific periodicals, bearing upon the transmission of the poison of smallpox, through systems entirely protected from its influence and demonstrating the existence of the poison in a potential active state, as shown by the excitation of genuine smallpox in the fetus, resting in the womb of the mother, protected by previous inoculation, vaccination and smallpox, *in the hope that the attention of physicians may be directed to analogous inquiries in yellow fever.*

If, therefore, the poison of yellow fever is capable of affecting the fetus in utero, in an analogous manner to the poison of smallpox, we may arrive at the following conclusions, which, if more extended investigation should clearly establish, will explain one mode in which the natives of those cities and localities, as New Orleans, where yellow fever often prevails, obtain an immunity from its attacks:

1. The poison of yellow fever is capable of affecting the fetus in utero.

2. It is probable that the yellow fever poison is capable of affecting the fetus in utero, without inducing the disease in the mother, who has had the disease at some period preceding pregnancy.

3. It is thus rendered probable that a certain number of natives are in this manner rendered insusceptible to the action of the yellow fever poison after birth.

MODIFICATIONS OF THE PHENOMENA OF YELLOW FEVER BY PRECEDING DISEASED STATES OF THE SYSTEM.

The most potent cause of derangement of those who reside within the yellow fever zone is the action of malaria, which not only manifests its effects in the causation of the various forms of intermittents, remittents, pernicious and hemorrhagic paroxysmal fevers, which differ materially in their origin, symptoms and pathology from yellow fever, but also, without the active manifestation of these forms of fever, in the slow destruction of the colored corpuscles, derangement of the liver, enlargement of the spleen, attended with a pale, sallow, sickly hue, infiltration of the cellular tissue, dyspnea, palpitations, derangements of the blood and nervous system, and depressions of the muscular and nervous forces.

While those who have been subjected for long periods to the action of malaria appear to be less liable to yellow fever, it is, however, true that the progress of this disease is modified by the changes induced in the blood and organs by the preceding action of the malarial poison; and the lesions after death from yellow fever differ to a certain extent from those observed in subjects freshly arrived from cold climates without being previously subjected to the action of the marsh miasm. And in every epidemic of yellow fever the malarial influence is so powerful in most of the cities of the tropical, subtropical and temperate regions of North and South America that it is never entirely suspended, and not only in many cases induces characteristic changes before the specific action of the yellow fever poison, but also is frequently engrafted upon the weakened convalescents from yellow fever, thus altering the farther progress of such cases, and inducing changes in the organs entirely different from those characteristic of yellow fever.

In this continuous and preceding action of the malarial or paludal poison, and in the frequent intermingling of the two diseases, we have an explanation of the apparently contradictory statements of observers as to the characteristic symptoms and lesions of yellow fever. It is evident therefore, that no observer is competent to the elucidation of the pathology of yellow fever who is not at the same time familiar with the changes induced by the various forms of paludal fever and malarial poisoning.

If we accept without reserve the doctrine advocated by John Hunter,[12] and ably supported by Joseph Adams,[13]—that "No two actions can take place in the same constitution, or in the same part, or at one and the same time; no two different fevers can exist in the same constitution, no two local diseases in the same part at the same time,"—then the question of the modification of malarial fever by yellow fever, and of the engrafting of the one upon the other, must be definitely settled in the negative.

We have elsewhere shown by an extended discussion[14] of this question that while, when two poisons representing two distinct exanthemic diseases act simultaneously upon the human being, the most obvious pathologic phenomena excited by the poisons will not occur simultaneously, but in succession—the one poison retarding the action of the other; the one producing its cycle of changes, while the other remains *dormant*, as it were, during the action of the first, and immediately after the changes induced by this cease, causing in turn its own distinctive effects—at the same time, it must be admitted that the character and cause of the specific eruptive diseases are greatly modified by such altered states of the constitution as exist in scurvy, scrofula and secondary syphilis. In that class of diseases represented by constitutional syphilis, scurvy and malarial poisoning, the blood is at fault, the nutrition is perverted and the course and products of diseased actions are correspondingly modified.

During the recent war, I embraced an opportunity for observing the effects of engrafting smallpox upon patients broken down by exposure, privation and the exhausting effect of hospital gangrene and pyemia.

In the month of September, 1864, smallpox spread from the ward devoted to the treatment of this disease to the Empire Hospital, which had been filled with cases of hospital gangrene and pyemia gathered from the general hospitals attached to the Confederate Army operating in and around Atlanta. The

[12] Works of John Hunter, edited by James F. Palmer, London, 1827: Vol. ii., Treatise on Venereal Disease, p. 132: Vol. iii., Treatise on the Blood, pp. 3-5; Vol. i., Principles of Surgery, pp. 312, 313.

[13] Observations on Morbid Poisons, Chronic and Acute, London, 1807, second edition, pp. 21-23.

[14] Researches in Spurious Vaccination, or the Abnormal Phenomena accompanying and following Vaccination, in the Confederate Army during the recent American Civil War, 1861-65, pp. 33-59, by Joseph Jones, M.D., formerly Surgeon in the Provisional Army of the Confederate States.

smallpox ward was situated in a pine grove about three hundred yards in the rear of the gangrene hospital; and without doubt communication was kept up between the different wards. Several of the nurses of the gangrene hospital were first attacked, and the disease appeared to have been communicated from them to the patients under their charge who were suffering with hospital gangrene and pyemia.

The following case arrested my attention as clearly illustrating the engrafting of smallpox upon a system reduced by hospital gangrene:

Case 15.—J. S. J., Company K, Nineteenth Alabama Regiment, age 21, wounded at the siege of Atlanta on July 22, 1864. Gunshot wound of right leg, which was amputated on the field of battle at the lower third of the thigh. Hospital gangrene attacked the stump, and the patient was admitted into the Empire Hospital on September 22. Nitric acid arrested the progress of the gangrene for a time, but it returned again, and the strength of the patient was gradually reduced by the absorption of the gangrenous matter and from an exhausting diarrhea. On November 2, while the patient was exceedingly feeble and nervous, and manifesting the symptoms of pyemia—viz., chills, icterus and vomiting of dark green matters—the eruption of varioloid made its appearance. The pustules, which were in considerable numbers, but small in size, progressed regularly, and on November 6 presented all the characteristics of the true variolous eruption, with the round form and umbilicated center. This patient had a good vaccination scar, and the smallness of the pustules appeared to be due to the fact that the system was partially protected by vaccination. The patient died during the night of the 6th, apparently from the effects of the gangrene, pyemia and exhausting diarrhea.

None of the pustules in the preceding case presented any appearance of hospital gangrene; and, so far as I was able to learn, both during my investigation and subsequently, no case occurred in the gangrene hospital in which moist gangrene attacked the eruption of smallpox or varioloid.

It was clearly established that smallpox would attack patients suffering with gangrene, and even pyemia.

Case 16.—In an interesting case which occurred in my private practice immediately after the close of the recent struggle for the rights of self-government in the Southern States, acute dysentery of a severe form was superseded by typhoid fever, which was well marked in its symptoms and progress by low muttering delirium, diarrhea, tympanites, lenticular rose-colored spots, and painful enlargements of the parotid glands. As soon as well-marked typhoid symptoms were manifested, all the symptoms of acute dysentery vanished, and the patient passed without pain or straining the ordinary bilious stools of typhoid fever, and the smallest doses of purgative medicine, either mercurial or saline, acted with great and dangerous violence, producing copious "pea-soup" stools.

The patient passed safely through the typhoid fever, and even the parotid glands subsided without suppuration; but in the third week after the appearance of the typhoid fever, when the patient was apparently doing well, the dysentery returned with severe straining, and the bloody and mucoid discharges of acute dysentery, and the patient died in consequence of the return of the original disease.

I have also observed that typhoid fever was often engrafted upon malarial fever among the Confederate troops serving in malarious districts, and that during its active stages it presented the usual continuous fever, with cerebral disturbance, agitation of the muscles, tympanites, diarrhea, and lenticular rose-colored spots. As soon as the typhoid fever was established, all signs of periodicity disappeared, and the torpid liver of malarial fever became active, the sallow hue of malarial fever became clear from the increased action of the liver, the torpid bowels loose and tympanitic; and after the disappearance of the symptoms characteristic of typhoid fever, the original malarious periodic fever reappeared, with its cold and hot stages recurring at regular intervals, and inducing torpor of the liver and bowels, and the sallow malarial hue.

As far as my observation extends, in like manner, when yellow fever is engrafted upon a system previously under the influence of the malarial poison, it establishes its own peculiar train of symptoms, distinct from those of malarial fever, and may be clearly recognized. When, however, the cycle of changes excited by the yellow fever poison has been completed, then the malarial poison may excite its characteristic recurring paroxysms, and change the yellow fatty liver of yellow fever into the dark slate-and-bronze liver of malarial fever, loaded with dark pigment granules.

While we know but little with reference to the concurrent action of the poisons of these two diseases upon the same system, and know nothing whatever of the state and mode of existence of that poison which "lies dormant" while the other is acting, at the same time we shall endeavor to illustrate the differences and relations of the symptoms and lesions by actual observations.

RELATIONS OF YELLOW FEVER, MALARIAL FEVER, AND MALARIAL HEMATURIA.

I have endeavored by careful observation of the various symptoms, by analysis of the blood secretions and excretions, and by careful examination of the pathologic lesions after death, to unravel the complicated chain of phenomena characteristic of yellow fever and other diseases; and while many facts are unexplained, and much remains to be investigated, we feel assured that the labors which we have pursued unremittingly during the past twenty-two years have been at least in the right direction.

The malarial poison induces profound alterations in the constituents of the blood. Under its action, as I have demonstrated by the first series of investigations (Trans. American Medical Association, 1859), colored blood corpuscles are more rapidly and to a greater extent destroyed than in any other disease; the fibrin is diminished and altered in quantity and quality; the albumen is in like manner diminished; the extractive and coloring matters of the blood are frequently increased. The unhealthy hue of the complexion in malarial fever appears to be due to the destruction of the colored blood corpuscles and the presence of coloring matter in the blood; the deposit of pigmentary matter, and the failure of the liver to separate fully the coloring matter of the bile.

In yellow fever there is no marked or uniform destruction of the colored blood corpuscles. The fibrin is diminished, and to a much greater extent than in malarial fever. There is no tendency to the formation of fibrinous concretions in the cavities of the heart in yellow fever, while the formation of such laminated fibrinous clots is common in malarial fever, and in some cases is the manifest cause of death.

Malaria, by its effects in inducing sudden congestions, and by its depressing effects upon the heart and upon the general and capillary circulation, and by its potent action on both the sympathetic and cerebro-spinal system of nerves, tends to promote the formation of heart clots, although there is an actual diminution of the fibrin in the blood during malarial

fever. In view of the rapid, feeble, intermittent pulse; disturbed, panting respiration; feeble, rapid, fluttering action of the heart; cold extremities, exhaustion of the muscular forces, stupor, wandering of the intellect, inability to control the muscles and acts of excretion; in view of the sudden onset of all the symptoms in malarial fever; in view of the observations which we have carefully recorded heretofore upon the lesions characteristic of malarial fever, we are justified in asserting that the fibrinous elements of the blood may be deposited in the heart and blood vessels during life in malarial fever, and not only give rise to distinct phenomena, but cause death in cases which otherwise would not have terminated fatally.

It is worthy of observation that in pyemia and in malarial fever, in both of which diseases there is a more rapid destruction of the colored blood corpuscles than in any other class of diseases, *chills* should characterize both affections, and form the most marked symptom. If such facts do not point out the nature of the cause of malarial fever, they at least sustain the belief that this disease, like pyemia and yellow fever, is due to the action of a special poison, and not to mere variations of climate and changes of moisture and temperature.

The rapid destruction of the colored blood corpuscles in malarial fever is evident, not only by a comparison of the constitution of the blood in this disease with that of yellow fever, but also by the presence of a larger amount of coloring matter in the urine. As a general rule, the graver the case of malarial fever the more deeply colored is the urine; while on the other hand, the reverse is the case with yellow fever. The coloring matter of the urine in yellow fever is due to a great extent to the retention of the biliary matters in the blood and the failure of the action of the liver; while on the other hand, the deep red and reddish-brown and orange-colored pigments of the urine of malarial fever appear to be derived chiefly from the colored blood corpuscles,

While the presence of the coloring matter in large amount in the urine of malarial fever may be dependent in part upon some imperfection in the excretion of carbon by those organs whose special function it is to eliminate this element from the blood, as the liver and lungs, and may, as has been observed by Golding Bird, be connected with some functional or organic mischief of the liver and spleen, or some other organ connected with the portal circulation; at the same time, from a careful consideration of the accompanying symptoms and subsequent *post-mortem* revelations, we have been led to the belief that in malarial fever the pigment is derived chiefly from the coloring matter of the blood cells, and that its amount may be taken as an index or measure of their destruction. This would be true, whether it comes at once from the blood corpuscles by changes taking place in the mass of the circulating fluid, or by the destruction of the blood corpuscles in the liver and spleen. Certain it is that this pigment is not found in the kidneys, and does not accompany diseases of the kidneys; nor is it thrown off under the action of organic medicines and compounds, drastics and purgative salts, which irritate and even cause disease of the intestines and kidneys. Even tincture of cantharides, when given in such large doses as to cause albuminuria and even blood to appear in the urine, does not cause such pigments as purpurine (Bird), uryoërythrin (Heller), or urohematin urophæin to appear in the urine. In those cases of yellow fever in which we have the greatest irritation of the kidneys, or rather in which there is the greatest structural alteration of these organs, will be found, as a general rule, the lightest colored urine. On the other hand, poisonous metallic salts, which derange the constitution of the colored blood corpuscles, and interfere with the blood-making or blood-regulating functions of the liver, and spleen, as the compounds of lead, copper, mercury, arsenic, and antimony, cause even in small doses the appearance of this substance in the urine; and when taken in doses sufficiently large to produce poisonous effects the quantity is greatly increased.

In malarial fever the constituent of the blood which suffers to the greatest and most essential degree is the colored blood corpuscle.

In yellow fever the constituent of the blood which suffers to the greatest and most essential degree is the albumen and its modification, fibrin.

The peculiar action of the poison in the former upon the colored blood corpuscles induces a distinct train of symptoms, and establishes distinct recognizable lesions, characterized chiefly by the deposit of pigment matter in certain organs; while in the latter the poison causes such changes in the albumen and fibrin as lead to the formation of non-nitrogenous and nitrogenous materials, some of which, as the oil and modified fibrin, are arrested or accumulated in certain organs, as the heart, liver and kidneys.

During the active stages of both yellow and malarial fever, phosphorus and the compounds of phosphorus in the nervous structures, as well as sulphur and the compounds of sulphur in the muscular structures, undergo more rapid changes than in the normal state; and phosphoric acid and the phosphates, and sulphuric acid and the sulphates, appear in increased quantities in the urine when the kidneys perform their offices. The waste of phosphorus and of its compounds in the nervous structures during the active stages of the disease is greater than the supply of these materials through the food. The nervous disturbances and debility characteristic of these fevers, as well as of others, are in a measure due to those rapid changes in the phosphorescent materials of the nervous structures, and especially of the central ganglionic cells.

In many cases of yellow fever, and in that form of paroxysmal fever called malarial hematuria, the function of the kidneys is impaired, and neither the urea nor the mineral acids are increased in the urine; while at the same time they accumulate in the blood, and exert deleterious effects upon the nervous system and blood. The increase of the urea and of phosphoric and sulphuric acids during the active stages of these diseases should not, therefore, be considered as anything peculiar and as at all distinguishing them from other fevers. It is only the tendency to congestion and alteration of the excretory structures of the kidneys that characterize yellow fever. The peculiar intoxication and nervous symptoms, as well as the black vomit of yellow fever, are intimately associated with suppression of the urinary excretion. In many cases I have found the black vomit of yellow fever to give strong alkalin reaction from the presence of ammonia resulting from the urea eliminated by the gastric mucous membrane. I have also detected by repeated analysis, urea in large amount

in the brain, heart, liver, spleen, muscles, and blood in yellow fever. In this disease, suppression of the action of the kidneys is more to be dreaded than black vomit, which it often precedes and induces.

The increase of these constituents of the urine is referable to the same cause—that is, increased chemic change—in both fevers, although it is evident that the nature of these chemic changes, and the special constituents involved may differ in each disease.

During the slow action of the malarial poison, as well as during the active stage of the paroxysm, important changes take place in the liver and spleen which are wholly different from the changes of these organs in yellow fever. In malarial fever, in both the liver and spleen, the colored blood corpuscles are destroyed in large numbers, and the coloring matter resulting from the disintegration of the colored corpuscles accumulates in them, and in conjunction with other changes in the nutritive processes of these organs produce those characteristic alterations of the normal color. In fatal cases, cellulose is found both in the liver and spleen, while grape-sugar is absent from the liver. The bile is also altered, both in chemic constitution and physical properties.

In yellow fever there is no destruction of colored blood corpuscles either in the spleen or liver, and no deposit of pigment matter, while *oil* is deposited in large amount in the liver, which together with the bile, impart to this organ a yellow color far different from the dark slate or bronze color of the malarial liver. The spleen is comparatively unaltered in yellow fever. Both cellulose and grape-sugar are found in the liver of yellow fever.

That the chemistry of the body is deranged in a definite manner in malarial fever is evident from the changes of the excretions. During the chill, and at the commencement of the hot stage, phosphoric acid disappears almost entirely from the urine. As the hot stage progresses, and the febrile action and the heat begin to decline, there is an augmentation of phosphoric acid. The uric acid is either increased or remains at the normal standard during the chill, disappears almost entirely during the fever, and then increases rapidly and rises to a high figure after the subsidence of the febrile excitement, and often continues for days, two, three, or even six times more abundant than in the normal state, as I have shown by a large number of observations published twelve years ago.

The sudden variations in the physical and nervous phenomena of malarial fever are accompanied by equally sudden and marked anatomic lesions and changes in the excretions. No such variations in the phosphoric or uric acids are observed in yellow fever. The poison inducing malarial fever acts in a definite manner, and is governed by definite affinities and relationships, and produces a type of disease distinct from yellow fever. The malaria of the swamps and marshes can only generate paroxysmal fever.

In the vast majority of cases of malarial fever, albumen does not appear in the urine. This constituent of the blood may, however, be present in the urine in malarial fever under certain circumstances.

1. Its presence in the urine of malarial fever may be due to preceding disease of the kidneys, of the liver, or heart.

2. To the prolonged action of the malarial poison, and the structural alterations induced by it in the spleen, liver, and kidneys.

3. To the congestion of the kidneys from cold, or from the impaction in the capillaries of pigment matter, or from the irritant action of the malarial poison upon the excretory structures in cases which have suffered with repeated attacks of intermittents.

It is the exception to the rule to find albumen in the urine in malarial fever; it is the exception to the rule to find albumen absent from the urine of yellow fever.

Even in those cases where the prolonged action of the malaria has produced profound structural alterations of the liver, consisting in the extensive deposit of black pigment granules within and around the capillaries of the liver, obliteration of many of the branches of the portal system within the lobules, and in the hardening and contraction of the entire organ, albumen is rarely present in the urine. I have examined the urine carefully without detecting albumen in a number of cases of ascites and extreme dropsical infiltration of the lower extremities, produced by the hardening and contraction of the liver in chronic malarial poisoning. I have observed cases, however, in which the kidneys were structurally altered by the malarial poison in a manner somewhat similar to the liver, in which albumen was a constituent of the urine.

A certain proportion of such cases may be referred to the causes which ordinarily lead to structural alterations of the kidneys, as the excessive use or abuse of ardent spirits, and the effects of exposure to wet and cold and extreme temperature; but there are cases of albuminuria which can be explained only upon the supposition that they are due to the structural alterations of the kidneys induced by the prolonged action of the malarial poison. And this condition of the urine is not to be referred to the watery condition of the blood induced by the destruction of the colored corpuscles and diminution of the albumen and fibrin; for the state of extreme anemia frequently induced by the action of the malarial poison is never attended by albuminuria, unless there be some structural alteration of the kidneys.

In that form of malarial fever characterized by complete jaundice, intense vomiting and nausea, and hemorrhage from the kidneys, which has received different names at different times and in different countries, and which is no "new disease" even in these Southern States, the hemorrhage from the kidneys is preceded by congestion of these organs, and is attended with desquamation of the excretory cells, and tubuli uriniferi of these organs.

Malarial hematuria (hemorrhagic malarial fever —new disease—up-country yellow fever,) as a general rule, occurs only in those who have suffered from repeated attacks of intermittent fever, or who have been exhausted by a prolonged attack of remittent fever; and while some of the symptoms, as the nausea, incessant vomiting (and in extreme cases black vomit,) deep jaundice, and impaired capillary circulation, resemble those of yellow fever, yet there are marked differences, similar to those already indicated, as distinguishing malarial and yellow fever.

The presence of the albumen in the urine of this so-called "malarial hematuria" is attended also with the presence of colored blood corpuscles, excretory cells of the kidneys, and the tubuli uriniferi, impacted ofttimes with altered blood corpuscles. I

have even detected the Malpighian corpuscles containing altered blood corpuscles, and deeply stained by the coloring matter of the blood. As a general rule in yellow fever, the tubuli uriniferi are loaded with yellow granular, albuminoid, and fibroid matter.

In those cases of malarial hematuria which have come under my observation there was evident congestion of the kidneys, attended with desquamation of the excretory cells and coats of the tubuli uriniferi and active hemorrhage. In some of these cases immense quantities of green biliary fluid were vomited, and the patients died in a state of apparent collapse. As a general rule, suppression of the functions of the kidney is a fatal sign, and, as in yellow fever, may be attended with convulsions, coma and delirium. A careful examination of the blood in malarial hematuria reveals great diminution of the colored corpuscles and fibrin.

The pathologic changes observed after death are characteristic of malarial fever: enlarged slate-and-bronze liver, with pigment granules; enlarged and softened spleen, filled with disorganized colored corpuscles and pigment granules; gall-bladder distended with thick, ropy bile, presenting when seen *en masse* a greenish-black color, and in thin layers a deep yellow. As much as one thousand grains of bile of high sp. gr. (1036) have been obtained from the gall-bladder, while in yellow fever not more than one hundred and twenty grains of bile are, as a general rule, contained in the relaxed gall-bladder.

I have thus clearly demonstrated that malarial hematuria is related to the various forms of true malarial fever (intermittent, remittent, and congestive,) and in fact is only one of the phases of this fever which may at any time be assumed after the alterations of the blood, liver, and spleen induced by the prolonged action of malaria. I have also clearly shown that it is distinct from yellow fever, although it may have some symptoms in common, as jaundice, black vomit, and albuminuria.

The treatment of malarial hematuria should be conducted upon the same general principles which should guide us in the treatment of pernicious intermittent, remittent, or malarial fever; with this addition, that attention should be paid to the condition of the kidneys, and they should be relieved by cut cups and counter-irritation. The bowels should be freely opened by a mercurial (calomel is the best preparation) combined with quinin. Ten grains of calomel and ten grains of quinin is a useful combination. Quinin should be freely given. The strength should be supported by nutritious diet (beef-tea and milk punch,) given by the rectum if the stomach will not bear it. Alcoholic stimulants should be used without any fear of injury. The action of the skin should be promoted by the hot-air bath and steam bath.

In brief, the *strength must be supported and the paroxysm arrested by quinin; the liver and bowels and portal system must be unloaded; the congestion of the kidneys must be relieved;* and during convalescence the blood must be enriched with pure and nutritious diet, and iron, and a gentle action of quinin maintained.

(To be continued.)

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A NEW METHOD FOR ANCHORING THE KIDNEY.

Read before the Columbus (Ohio) Academy of Medicine, Nov. 19, 1884.

BY R. HARVEY REED, M.D.
COLUMBUS, OHIO.

Since Hahn, in 1881 anchored the kidney, operations for this purpose have gradually grown in favor until at the present time there are few surgeons who do not recognize it as a justifiable procedure. Prior to that time, in cases where a floating or movable kidney required operative interference, surgeons only considered the question of nephrectomy—a most formidable and dangerous operation without the protection of asepsis or antisepsis.

ANATOMIC MEMORANDA.

In anchoring the kidney, there are a few anatomic landmarks it is always well to keep clearly in mind and especially so in performing the operation which we are about to describe. Clinical experience teaches us that movable and floating kidneys occur more frequently on the right side than on the left. In this connection it is well to remember that the right kidney, when in its normal position is usually located a little lower than its fellow and, on the average, measures about four inches in length. The left kidney is usually longer and narrower than the right kidney. The upper margin of the right kidney when in its normal position is on a level with the twelfth dorsal vertebra. This throws its margin slightly above the upper border of the twelfth rib, which is an important point to remember in the operation I am about to describe. The left kidney being located a little higher than the right, its upper margin not infrequently is on a level with the lower border of the eleventh rib and sometimes even reaches a point slightly higher.

The right kidney is usually about two and a half inches in width, while the left kidney seldom exceeds two inches, but makes up for its reduction in width by increase in length. They are each about one inch in thickness, which is also an important factor in considering the question of anchoring. By keeping these few anatomic landmarks in view, the operator will be able to comprehend the mechanical conditions that are present, and which he must meet in anchoring a floating or movable kidney in its normal position.

PATHOLOGIC CONDITIONS.

In a brief paper of this character we shall not attempt to enter into the details in considering the pathology. Only a few salient points will be noticed. If we have a true floating kidney to deal with we have a mesonephron or, in other words, the kidney is enveloped in a peritoneal sac with a pedicle, the base of which usually corresponds with the natural position of the kidney. The length of this pedicle varies in different cases while the size of the sac depends on the size of the kidney. The pedicle contains the nerve, artery, vein and ureter which are more or less displaced and imposed upon, often giving rise to severe congestion on the one hand or hydronephrosis on the other, and associated with frequent attacks of excruciating pain.

It will be observed that in this condition you have a tumor resembling that of a long-necked gourd hanging with the large end of the gourd down, the neck representing the pedicle and the large end of

the gourd the kidney. As a rule this tumor is free to move and changes its position with the movements of the patient, or by manual manipulations, the peritoneal surfaces being free to glide upon each other.

In the movable kidney there is no mesonephron, but the kidney is jarred loose from its attachments and is free to move behind the peritoneum. In changing its position it drags with it the artery, vein, nerve and ureter which form the pedicle. In a movable kidney you will observe the peritoneum is dissected up from its posterior attachments and the kidney is free to move behind it. It will, therefore, be observed that the only practical difference between a floating kidney and a movable kidney is that the one is enveloped in a peritoneal sac, while the other moves behind the peritoneum and has no sac. In either condition, however, there is danger of obstructing the artery, vein or ureter, or any two of these vessels, or all of them. They may become occluded by pressure or torsion, producing congestion or hydronephrosis, or both, as the case may be. At the same time the nerves are liable to be implicated, producing severe neuralgic pains with or without the presence of either congestion or hydronephrosis.

SURGICAL RELIEF.

Prior to 1881, when surgical relief was attempted under these conditions, nephrectomy was the only operation considered. At that time, Hahn, of Berlin, made a lumbar incision and fixed the kidney in its normal position by suturing it to the lumbar muscles. Ashhurst shortly afterward made the same operation successfully. Subsequently, the operation was performed by Kûster, Esmarch, Bassini, Newman and others with satisfactory results. The object in making *this* operation was to avoid entering the peritoneal cavity which was a very necessary precaution prior to the introduction of aseptic surgery. The difficulty, however, in performing this operation was in manipulating the kidney (and especially so in fleshy persons) and holding it in place until it could be fixed by sutures to the lumbar muscles. These operators did not close the incision but packed it with iodoform gauze and allowed it to heal by granulation. Those of us who have performed either the extra- or intra-peritoneal operation will readily appreciate the difficulty of holding the kidney in its place. In my experience I find it about as difficult to manipulate a floating kidney and hold it in a fixed position as it is to manipulate a cake of wet soap on a wet soap dish with soapy hands, and hold it firmly in one place. I have seen good operators attempt this operation (both extra- and intra-peritoneal) who were absolutely unable to manipulate the kidney so as to hold it in its place long enough to securely suture it. This difficulty, together with the advancement of aseptic surgery, has led to opening the peritoneal cavity with a view of getting at the kidney more readily and by manual manipulation hold it to its place until it can be securely anchored. In fixing the kidney in this way, it was necessary to use a curved needle which was sufficiently long to pass through the kidney (which you will remember is an inch in thickness) the fascia, and into the muscle of the back sufficiently deep to insure a firm attachment. This requires a half-curved needle not less than two and a half to three inches in length. In making this operation it was not only a difficult task to hold the kidney in position until the first suture could be inserted, but it also necessitated great care on the part of the operator to avoid wounding the liver, gall-bladder and even the intestines with the point of the needle, or tearing the parenchyma of the kidney with its heel in making the short curve necessary in completing the suture. I have seen hemorrhage from tears of this kind so profuse that it became necessary to open the posterior wall of the peritoneum and control it by the use of hot compresses which not only delayed the operation, but increased the danger to the peritoneum. I never anchored the kidney, either intra- or extra-peritoneal, without feeling that the various operations heretefore employed should be simplified and the operation performed in less time, with less danger and much less trouble, and equally good or better results obtained. The consequence is that I have devised the operation which I now perform, and from the limited experience I have had with this operation and the successful results following it, I feel that I am justified in presenting it to the profession for their consideration.

In view of the minimum amount of danger in opening the peritoneal cavity under aseptic precautions, together with the decided advantage it gives to the operator in manipulating the kidney, and assuring himself that the vessels and ureter are not incarcerated in any way, I have arrived at the conclusion that the intra-peritoneal operation is to be preferred over that of the extra-peritoneal.

My operation consists in making the ordinary perpendicular abdominal incision over the median line of the kidney. As a rule, it need not exceed two and a half to three inches in length, depending largely on the thickness of the abdominal walls. Having made the incision sufficiently large to get the fingers in and bring the kidney to its normal place, I then use a long needle which I have had made on purpose, varying from five to seven inches in length. Two of these needles are threaded with aseptic silkworm gut or aseptic silk, using but one ligature, armed with one of these long needles at each end. Having placed the kidney in its normal position (and in the case of a floating kidney scored the peritoneum so as to favor adhesions), I now insert my first needle through the upper and inner part of the cortical substance of the kidney, directly through the muscles of the back, coming out between the eleventh and twelfth ribs. The second needle which is on the other end of the ligature is also passed through in a similar manner, about an inch from its fellow, through the upper and outer cortical substance of the kidney making, as you will recognize, a staple stitch. These ligatures are tied on the integument of the patient's back by an assistant. If necessary, another suture is inserted in a similar manner through the outer margin of the kidney, the first needle of the second suture being passed about an inch below the last needle of the first suture, and the second needle of the second suture about an inch below the first needle of the second suture through the cortical substance of the outer portion of the kidney. By anchoring the kidney in this manner, the entire operation can be performed in not to exceed fifteen minutes unless there are some annoying complications to contend with, for, as you will observe, all that is necessary is to open the abdominal cavity, place the kidney in its normal position and with the use of these long needles the suture can be

placed in position quickly without any fear of injuring the abdominal viscera, or unnecessarily tearing the cortical substance of the kidney. In tying the sutures, care should be taken to draw them sufficiently tight to not only hold the kidney in place, but to produce sufficient irritation to excite inflammatory adhesions, which are intended to hold the kidney in place, and which are so essential to make the operation a permanent success. It is also necessary to be guarded against tying the sutures so tight as to cut through the peritoneum and the substance of the kidney. Either of these conditions, however, can be avoided by care on the part of the operator. After properly tying the sutures the abdominal wound is closed in the ordinary manner. The anchor is allowed to remain from ten days to two weeks. At the expiration of this time, adhesions are formed sufficiently strong to hold the kidney in place when the anchor is removed, and in two weeks more the patient will be able to leave the hospital.

The advantages we claim for this operation are:

1. Simplicity.
2. Rapidity.
3. Efficiency.

The operation is practically bloodless. There is no danger of injuring the abdominal viscera. It is easily performed and the results so far are certainly very satisfactory as illustrated by the following case:

Miss E. E. B., age 28; single; occupation a stenographer; family history and previous health good. In February, 1894, while lifting a large piece of coal, felt something give way in the abdomen, and from that time had suffered from pain principally located on the left side of the abdominal cavity. Living in Chicago, she consulted several physicians in that city who differed in opinion as to the nature of the case. One pronounced it ulceration of the os uteri and treated her accordingly; another announced that it was a floating left kidney. The patient in the meantime gradually grew worse and returned to this city, her former home, when she consulted her family physician, Dr. E. Frazier Wilson, who called the writer in counsel. Upon examination a wandering right kidney was readily discernible, which could be moved from its normal position to a point as low down as the brim of the pelvis, and could be easily shot up until it was lost behind the lobe of the liver. This manipulation was not painful. On further examination, a displacement of the left kidney was discovered, which was found fixed in an abnormal position. The exact condition of the left kidney could not be satisfactorily diagnosed prior to operation, and patient so informed.

She was admitted to the Protestant Hospital, July 21, 1894. Assisted by Dr. Wilson, I operated on her July 22, and found the wandering kidney, which we anchored according to the method I have already described, using but one silkworm gut suture. This part of the operation was rapidly accomplished and was practically bloodless. Had it not been for other complications the operation could have been completed in a few minutes. On further examination, it was discovered that the left kidney was congenitally malplaced, and was located much below, and very much closer to, the vertebral column than it should be normally. The peritoneum covering the lower margin of the kidney was adherent to the left ovary. The latter was found to be about the size of a walnut and very much inflamed. The adhesions were broken up, the ovary removed and the abdominal incision, which in this case was made through the linea alba on account of the suspected complications, closed in the usual manner. There were no unfavorable symptoms. The temperature and pulse ranged from 98.6 to 101.7 and from 72 to 108 respectively.

The patient was discharged from the hospital August 14, and in a few weeks returned to her position at Chicago, where she has been working ever since. It was my fortune to see her, when in Chicago recently, at which time I was permitted to make a careful examination. I found the right kidney firmly anchored in its normal position and free from all tenderness. The patient's health has improved ever since the operation. She has gained several pounds in weight and to all appearances has obtained permanent relief.

After reading the paper, the author exhibited the needles he has had made for this purpose.

150 East Broad Street.

TWO CASES OF BRAIN SURGERY WITH REMARKS.

Read before the Northern Tri-State Medical Association at Hillsdale, Mich., Dec. 11, 1894.

BY HAL C. WYMAN, M. Sc., M.D.
DETROIT, MICH.

Case 1.—A young woman, 23 years old, a teacher, had an attack of facial erysipelas, which started from a crack or cold sore in the alar aspect of the left nostril. Her face swelled and closed her eyes. The left ear became greatly swollen. The scalp of the forehead and left side of head was swollen and edematous to the crown. She suffered great pain, but no pus appeared in the parts, although she had a temperature ranging from 104 to 105 degrees F., for seven days. She took quinin and tincture of iron in doses of 2 grains and 7 drops respectively, during that time. The inflamed area was brushed with tr. iodin, reduced one-half with dilute alcohol, once a day. The left nostril was obstructed by swollen mucous membrane for three days, but it gave way under the daily use of an ointment made by rubbing 20 grains of citrin ointment with 1 ounce of white vaselin. The swelling then left the face and scalp; and delirium, which had been so violent that the constant service of a nurse was required to keep her in bed, now disappeared. Convalescence apparently began on the ninth day of her illness, but in reality, another train of symptoms began. Fever of less degree and indifference to her surroundings became a feature of the case and she had cold spells, during which her lips were quite purple and bodily temperature rose from 99 to 102 degrees and declined again to 99 degrees, when the lividity disappeared. Respiration was hurried during the cold stage and profuse sweating accompanied the return of normal respiration. Delirium re-appeared. The whole right side became paretic. The left pupil enlarged and would not respond to light. She became more stupid and, after three days was profoundly comatose. Neither shaking nor loud calls would awaken her. Water placed in her mouth was not swallowed, unless it was placed well back in the fauces. The bowels moved incontinently and the urine was removed with a catheter. Reflexes were nearly abolished. The prognosis of several physicians who consulted on the case was, death, the converse of the maxim that life is governed by probabilities, unless an operation, which had already been proposed for several days, relieved the intracranial pressure.

I need not recite the theories that were advanced during the consultation to account for the symptoms. We have all seen such cases and are familiar with the phenomena of meningitis, thrombosis of lateral and sigmoid sinuses and cerebral degenerations.

The friends consented to an operation. I washed the head with soft soap and warm water, shaved the left side of it and again washed it with alcohol. I then made an incision through the soft parts to the skull, beginning one inch above the external auditory meatus, half an inch behind the ear, two inches long, parallel with the long axis of the mastoid. In the center of this wound, the soft parts being held asunder with retractors, I placed the crown of a trephine, and, by alternately boring and using the elevator, removed a button of bone, half an inch in diameter. From the diploë, a small quantity of sanious fluid oozed. With the strong oval-pointed tip of a dressing forceps, I chiseled through the remaining thickness of the skull and reached the cranial cavity, and a quantity of watery pus discharged. With rouguer forceps the opening was enlarged to the full size of the trephine opening and pus discharged more freely. This was done without anesthetic, the patient being profoundly insensible, in consequence of the disease. In a few minutes, while I was washing the abscess cavity with weak carbol solution, she moaned and exhibited signs of consciousness. With each respiratory movement, the fluid would well freely from the skull. A probe, with one end resting in the pus cavity, pulsated synchronously with the

heart. A gauze drain was placed in the abscess and covered with absorbent gauze. An antiseptic dressing completed the operation. Complete consciousness returned during the next three or four hours. Convalescence began at once and continued without interruption. For three weeks, pus discharged from the wound in quantities sufficient to soil a handful of gauze, but gradually granulations closed the wound and the patient is now well and sound.

Case 2.—A Canadian farmer, 34 years old, had earache. After several days of suffering, pus discharged from his left ear. He did not, however, recover his full vigor, as he had in several similar attacks he had suffered during the preceding ten years. Instead, his appetite was poor, he was dizzy and had pain in the left side of his head, about the suppurating ear. A soft swelling appeared over the mastoid. His hearing in the left ear was gone. He had chills and fever, and, at intervals of every hour or two, terrible shooting pains would run through his head, starting from the suppurating ear, the discharge from which had diminished. His doctor incised the swelling back of the ear and removed a small quantity of watery fluid, which he did not think was pus. The operation gave a temporary relief from his pain. The wound healed. Fever, however, continued, but it did not rise above 101 degrees F. His general condition did not improve. He had been able to sit about the house half the time, but was now too feeble to get out of bed. His left eye would not close, nor could he see well with it. It was turned outward; the left side of his face was paralyzed; the left conjunctiva was edematous and the left pupil was contracted. In sleep, which came only when he was under the influence of chloral, morphin and bromid of potash, the muscles of his right upper and lower extremities would jerk and twitch. When awake he was very restless, all the muscles of his extremities being irritable. When spoken to loudly, he would briefly quiet down and apparently compose himself for sleep, but would soon sigh and moan and toss about. He was not unconscious and tried to arrange his affairs for death. He had been in this miserable condition four weeks, when I saw him and told his physician that I thought an operation, which would remove the diseased mastoid and drain the skull, would give a chance for recovery. The patient and his friends were pleased to submit to anything that offered any hope of relief. His head was prepared antiseptically, as in the preceding case. He was anesthetized with chloroform and an incision was made back of the ear, exposing the mastoid and a part of the squamous of the temporal bone. Several arteries required to be held with forceps, until sutures were introduced to close the wound. The outer wall of the mastoid was carious and rough. It was easily chiseled away with the point of a dressing forceps, so that the rougeur could be used to open the skull. The mastoid was filled with soft, purulent granulation tissue, which extended to the dura mater. Watery pus discharged in small quantity. I neglected to state that the parotid gland and other glands and tissues of the neck, beneath the angle of the left jaw, were swollen and indurated, indicating that the inflammatory process had extended from the skull to the neck, since the second week of his illness.

This condition, with the absence of a free discharge from the epidural space, convinced me that the membranes contained the offending fluids. With the rougeur, the bone and granulation were further cut away, until my finger could be applied to the dura mater. Bleeding was quite free, but was easily controlled by packing the margin of the bone with iodoform gauze. The pulsation could be felt through the dura mater, which bulged into the opening in the skull. An indistinct sense of slightly movable hardness could be felt in the region of the lateral sinus—probably a thrombus. A small opening was made above the area of hardness, through the dura mater. A bistoury was used for this purpose. At once, a quantity of watery pus discharged. A forceps was passed through this wound to dilate it and the fluid discharged in jets, like the pulsation of an artery. Some of the fluid was dark, like thin dead blood and the remainder of it was like thin pus. The quantity was not measured, but I think two ounces discharged. When it ceased running, a small rubber drainage tube, one inch long, was passed through the dura mater and was fixed with a small sterilized safety pin, to prevent slipping within the cavity of the membrane. Absorbent gauze and antiseptic dressing were applied after the scalp had been partially closed by sutures over the opening in the bone. The patient was ordered to have no more anodynes and to take alternately calomel and sulphate of magnesia, until his bowels were freely open. Then he was given 10 drops of tincture of iron, in a tumblerful of corn-meal gruel, once in four hours. On this treatment he steadily improved. The drainage was taken from the dura mater at the end of a week, no more fluid discharging from the tube at that time, but the mastoid continued to discharge for a few weeks and the granulations protruded from the wound exuberantly. They were dusted with calomel and dressed with plain gauze twice daily. The bone healed slowly, but his physician tells me that the opening is now, nine months after the operation, entirely closed. His hearing is much impaired on that side. The auditory fistula was not painful, though quite offensive. The squint has not disappeared, although the ptosis can scarcely be noticed. The expression is otherwise normal.

These cases are related to call attention to a department of pathology that, I fear is sometimes neglected in surgery. We are in the habit of leaving all cases of inflammatory disease of the ear to aural specialists, and these gentlemen treat the cases as long as they can apply remedies through the Eustachian tube, external ear or an opening into the mastoid cells. When the symptoms indicate an extension of the inflammatory processes to the parts within the cranium the case is commonly left without surgical interference and terminates fatally. The reason for this is found in the neglect of anatomy by physicians. The anatomy of the temporal bone is made to appear so hard to learn that few students ever get more than a superficial knowledge of it, and graduates commonly think it contains little useful knowledge. In the search for purely practical information it is commonly overlooked and passed by as of no use. But modern aggressive surgery is exploring the *terra incognita* of anatomy as modern geographers are exploring the Congo River and African lakes. Neglect to make careful autopsies and idolatrous devotion to the microscope as a means of revealing the mechanism of disease are also blamable for the absence of a sound pathology on which to base a more active surgical treatment in a large class of inflammatory diseases affecting the brain.

I have brought with me two skulls, which have been prepared so as to show the relations existing between the mastoid and petrous cavities, cells, spaces, fissures and foramina of the temporal bone and the cranial cavity. You will observe that the situation of the lateral, sigmoid, petrous and cavernous sinuses are indicated by red colors. The external wall of the mastoid has been chiseled away, leaving the mastoid cells. The anterior aspect of the petrous portion of the temporal bone has been chiseled away to show the internal and middle ear and their relations to the cranial cavity. The posterior part of the petrous portion of the temporal bone has likewise been in part chiseled away, to show the relations existing between the various cavities of the petrous portions of the temporal bone, the mastoid cells and the middle ear. I need not tell you that there is a direct channel of communication between all of these cavities, by way of the Eustachian tube or perforated drum membrane, and all cases of inflammatory disease affecting the throat or middle ear. By direct continuity of mucous and vascular channels, inflammation may gain access to the cranial cavity, the membranes of the brain and the brain itself.

I am sorry that the distance from Detroit prevented me from bringing more skulls with me. I could have shown you numbers of them in which normally almost direct communication between these cavities and the brain existed, the separation being simply membranous. Let me state that all fora-

mina nearly, that I have mentioned, contain venous and lymph channels, which pass directly from the mucous membranes lining these various cavities and cells to the large sinuses and cerebral membranes; in view of these facts, I do not think it at all strange that simple inflammatory disease of the throat and malignant inflammatory diseases like diphtheria may readily extend to the cranial cavity. We can further see how a disease extending through these bone spaces to the cranial cavity may, by the accumulation of inflammatory products cause disturbance of the function of the brain and spinal cord, not unlike that which we frequently see after diphtheria and are in the habit of attributing to the direct effect of toxins upon the nervous system. These channels in the bone at the base of the skull are the only means of conveying away the materies morbi and their products. The apparatus is so complicated that nature drains away with difficulty the products of inflammation. Therefore, surgery must provide a means of drainage or fatal results will follow. What the appendix vermiformis and the Fallopian tubes are to peritonitis, the mucous cavities in the petrous and mastoid portions of the temporal bone are to meningitis and compression of the brain.

A CASE OF CEREBRAL CLOT; LOSS OF VISION FOLLOWING INJURY; TREPHINING; RECOVERY.

BY JOHN B. HAMILTON, M.D., LL.D.
CHICAGO.

In November, 1893, Dr. Julia Holmes Smith, of Chicago, brought a patient to my service at the Chicago Policlinic with the following history:

Sister Adele, of the Benedictine order, aged 20, strong and healthy, was injured in Canon City, Colorado, June 18, 1893. At the time of injury was on a step ladder unscrewing one of the fastenings of a chandelier in the Academy St. Scholastica. A staple or hook fell, striking her on the top of the head, just posterior to the Rolandic fissure on the right side. Had great pain, but no wound of the scalp; severe

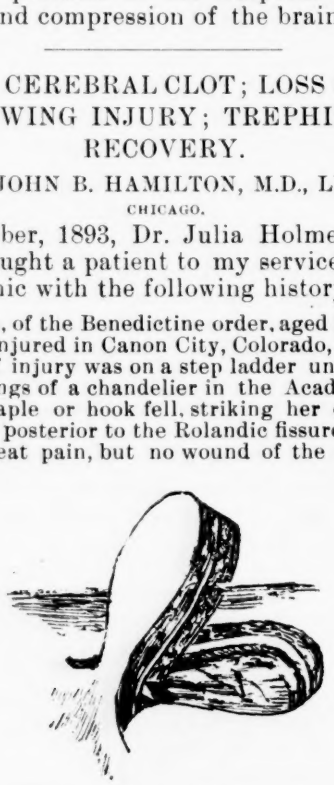

Fig. 1.—Temporary resection of bone flap from cranium. (From Esmarch, after Wagner.)

headache which has never entirely disappeared. Vision in right eye gradually failed, and could not see; totally blind in right eye. Deafness of right ear began almost immediately after the accident and continued. There was no motor paralysis, no loss of sense of taste or of smell. Vision and hearing apparently normal on the left side. Ophthalmoscopic examination by Prof. J. Elliott Colburn: "O. S. normal, O. D. slightly vascular; no evidences of past or present neuritis. Must have pressure in region of optic commissure on right side. Diagnosis: Pressure from injury in region of fissure of Rolando."

I trephined the patient November 15 at the Benedictine Convent, Dr. E. J. Senn assisting and Dr. J. H. Smith present. Temporary resection of cranial wall with chisel. Dura mater healthy; incised it and passed a silver wire loop downward and forward toward optic commissure. On withdrawal a firm round coagulum about three centimeters in length was found attached to the wire. A second time the wire was passed, but this time the result was negative. The wire was then gently passed in a posterior direction following the posterior surface of the petrous portion of the temporal bone, without result. The bone was replaced after suture of dura, and the wound was then closed, three silkworm gut threads being left in the angle of the wound for drainage. The wound was dressed in the usual manner. The patient rallied well after the operation, but on the second day there were con-

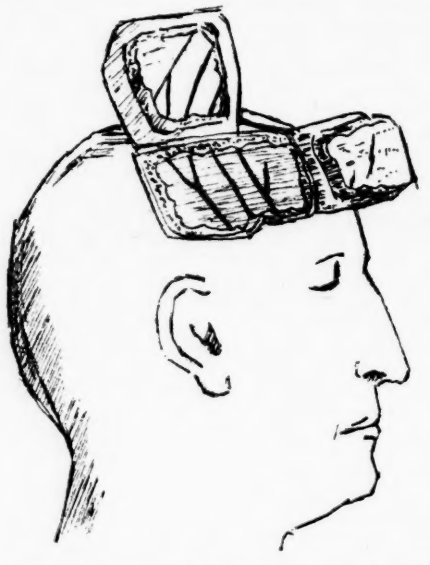

Fig. 2.—Double section of Wagner. (After Chipault.)

vulsions with total loss of consciousness and spasmodic contraction of the muscles of the left arm and hand. I inferred there must have been an oozing causing pressure, and as I was confined to my room with a severe cold, Dr. C. P. Wertenbaker, of the Marine-Hospital Service, was requested to reopen the wound. He did so, and removed coagula pressing upon the dura. The wound was again closed after care-

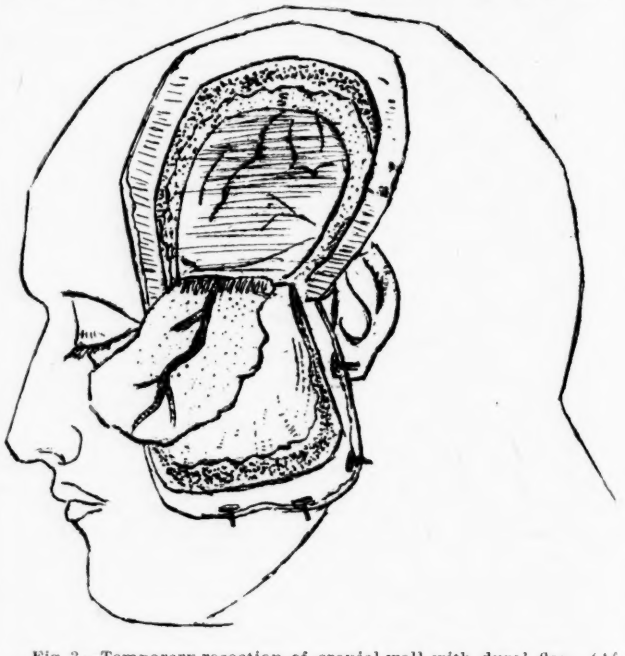

Fig. 3.—Temporary resection of cranial wall with dural flap. (After Chipault.)

ful cleansing, and the patient recovered without untoward symptom. The temperature remained normal.

June 18, 1894, Professor Colburn again examined the eyes and found the field normal in both eyes. Vision had been restored from the date of the operation. Nov. 18, 1894, I again saw the patient and found her with normal hearing and vision, and in good health.

In regard to the technique of trephining, it is

proper to add a few words in explanation. For the last three years, I have used the "corner" chisel and mallet. I think favorably of the circular saw propelled by the dental engine, but I have not used it. Before becoming acquainted with the merits of the temporary resections, I used the large conical trephine, preserved the bone button with great care during the operation, keeping it in a warm towel previously wrung out of a hot antiseptic solution, and replaced it afterwards, but with the method introduced by Wagner. we need no longer fear non-union of the bony flap when replaced, and here as elsewhere, the most rigid asepsis must be maintained during the operation and at the subsequent dressings.

SOCIETY PROCEEDINGS.

Proceedings of the First Meeting of the American Academy of Railway Surgeons.

Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.

FIRST DAY—MORNING SESSION.

The Academy convened in Room 44 of the Grand Pacific Hotel, and was called to order by the Chairman of the Committee on Organization, DR. R. HARVEY REED, Consulting Surgeon, B. & O. R. R., Columbus, Ohio.

On motion, DR. H. J. MAYNARD, Division Surgeon, U. P. D. & G. R. R., Cheyenne, Wyo., was called to the chair.

DR. WEBB J. KELLY, Division Surgeon, Erie R. R., Galion, Ohio, was selected as temporary Secretary.

Inasmuch as the minutes of the previous meeting were nearly, if not all, contained in the report of the Committee on Permanent Organization, the reading of the same was dispensed with.

On the roll call of Charter Fellows the following surgeons who had filed written applications for fellowship were found to be present: Drs. W. W. Appley, Surgeon, N. Y. L. E. & W. R. R., Cochecton, N. Y.; W. W. Barnett, Ass't Surgeon, N.Y. C. & St. L. R. R., Fort Wayne, Ind.; W. R. Blakeslee, Surgeon, N. Y. L. E. & W. R. R., Forest City, Pa.; D. C. Bryant, Oculist, U. P. R. R., Omaha, Neb.; W. L. Buechner, Surgeon, N. Y. L. E. & W. R. R., Youngstown, Ohio: F. H. Caldwell, Chief Surgeon, S. F. & W. R. R., Sanford, Fla., E. C. Carr, Surgeon, P. C. & St. L. R. R., Coshocton, Ohio; C. K. Cole, Chief Surgeon, Montana Central R. R., Helena, Mont.; J. Homer Coulter, Surgeon, C. B. & Q. R. R. Chicago, Ill.; C. M. Daniels, Chief Surgeon, W. N. Y. & P. R. R., Buffalo. N. Y.; J. I. Barby, Chief Surgeon A. & M. R. R., Americus, Ga.; N. F. Donaldson, Ass't Surgeon, U. P. R. R., North Platte, Neb; C. D Evans, Surgeon, U. P. & B. & M. R. R., Columbus, Neb.; A. E. Evans, Surgeon, B. & O. R. R., Columbus, Ohio; Chas. B. Fry, Surgeon Big Four R. R., Mattoon, Ill.; W. J Galbraith, Chief Surgeon, U. P. R. R., Omaha, Neb.; David Gildner, Surgeon, B. & O. R. R., Rockwood, Pa.; R. S. Harnden, Surgeon, Erie R. R., Waverly, N.Y.; Milton Jay, Chief Surgeon, C & E. I. R. R., Chicago, Ill.; T. C. Kennedy, Surgeon, Big Four R. R., Shelbyville, Ind.; Webb J. Kelly, Division Surgeon, Erie R. R., Galion, Ohio; C. B. Kibler, Surgeon, N. Y. P. & O. R. R., Corry, Pa.; L. E. Lemen, Division Surgeon, U. P. R. R., Denver, Col.; H. J. Maynard, Division Surgeon, U. P. D. & G. R. R., Cheyenne, Wyo.; W. H. Meyers, Surgeon, B. & O. R. R., Meyersdale, Pa.: R. D. Mussey, Chief Surgeon, C. H. & D. R. R., Cincinnati, Ohio; J. P. Kirkpatrick, Surgeon, P. C. & St. L. R. R., London, Ohio; John E. Owens, Chief Surgeon, C. & N. W. R. R., Chicago, Ill.; F. H. Peck, Surgeon, N. Y. P. & O. R. R., Clinton, N. Y.; J. K. Perkins, Surgeon, U. P. R. R, Kansas City, Mo; R. Harvey Reed, Consulting Surgeon, B. & O. R. R., Columbus, Ohio; A. Rhu, Surgeon, Big Four R. R., Marion, Ohio; A. C. Scott, Chief Surgeon, G. C. & S. F. R. R., Temple, Texas; Howard J. Williams, Surgeon, Central R. R. of Ga., Macon, Ga.; S. G. Worley, Chief Surgeon, J. St. A. & I. R R., St. Augustine, Fla. Chas. H. Merz, Surgeon, C. S. & H. R. R., Sandusky, Ohio, was present before roll call but was called home by telegram.

The Committee on Permanent Organization, through its chairman, Dr. R. Harvey Reed, made the following report:

REPORT OF THE COMMITTEE ON PERMANENT ORGANIZATION.

"*History.*—The idea of an association of railway surgeons of some kind or character that should have a limited number of members is not a new one. As early as May, 1892, at Old Point Comfort this subject was discussed by many of the prominent railway surgeons of this country, who recognized the fact that such an organization was in the interest of railway surgery, as well as of the railway surgeon and the company.

"In June, 1893, this same question was again talked of by chief surgeons and others at Omaha, and not a few letters were exchanged, subsequently, between railway surgeons relative to this important move. In December, 1893, an editorial was published in the surgical department of the *Railway Age* in reference to this subject. By this brief *résumé*, it will be observed that an organization, similar to the one we expect to christen here to-day, is not of recent origin, but, on the contrary, is the result of mature consideration that dates back for years. In Galveston on May 9, 1894, an informal meeting was held by those interested in an organization of this character at the Beach Hotel, of which Dr. C. K. Cole, of Helena, Mont., acted as chairman and Dr. J. M. Dinnen, of Fort Wayne, Ind., acted as secretary. On May 10 a similar meeting was held at the Tremont House, of which the following are the minutes:

"In pursuance of the meeting held in the Beach Hotel on the evening of May 9, the following surgeons met in the parlors of the Tremont House and were called to order by Chairman Cole, of Helena, Mont.:

"Drs. A. D. Bevan, Chief Surgeon, Iowa Central R. R., Chicago, Ill.; W. A. Adams, Chief Surgeon. Ft. W. & D. R. R., Ft. Worth, Tex.; W. H. Elliott, Chief Surgeon, Central R. R. of Ga., Savannah, Ga.; John E. Owens, Chief Surgeon, C. & N. W. R. R., Chicago, Ill.; C. W. P. Brock, Chief Surgeon, C. & O. R. R., Richmond, Va.; N. Y. Leet, Chief Surgeon, D. L. & W. R. R., Scranton, Pa.; Geo. Ross, Chief Surgeon, Southern R. R. Co., Richmond, Va.; W. G. Galbraith, Chief Surgeon, U. P. R. R., Omaha, Neb.; Jas. Carter, Surgeon, U. P. R. R., Carbon, Wyo.; H. J. Williams, Chief Surgeon, Central R. R. of Ga., Macon, Ga.; R. Harvey Reed, Consulting Surgeon, B. & O. R. R., Columbus, Ohio; N. V. B. Newcomer, Surgeon, L. E. & W. R. R., Tipton, Ind.; C. D. Evans, Surgeon, B. & M. R. R. R., Columbus, Neb.

"In the absence of the Secretary, DR. R. HARVEY REED, of Columbus, Ohio, was requested to act in his place. An informal talk was held in which the surgeons present took part, and freely discussed the question and propriety of organizing a new association, to be named hereafter, to be composed of a limited number of members and to have for its object the advancement and improvement of railway surgery.

"It was unanimously conceded that the railways were very much opposed to transporting such a large number of surgeons and their wives to each annual meeting. It was also believed that an organization of active workers would meet with approval among the managers of the railroads and accomplish better results with less expense.

"It was therefore moved by DR. C. W. P. BROCK, of Richmond, Va., that a committee on permanent organization be appointed consisting of Drs. R. Harvey Reed, Columbus, Ohio, Chairman; Dr. W. H. Elliott, Savannah, Ga., and Dr. C. K. Cole, Helena, Mont.; said committee was authorized to proceed and take up the plans for the new organization and prepare a constitution and by-laws for the same, to be reported at a meeting to be held at a subsequent date.

"It was suggested by Dr. W. H. Elliott, of Savannah, Ga., that we request the National Association to become a delegatory body. This was favored by Dr. Brock and others.

It was believed if this could be done it would not be necessary to organize a new association. After considerable discussion which was participated in by Dr. Owens, of Chicago, Dr. Galbraith, of Omaha, Dr. Ross, of Richmond, Dr. Cole, of Helena and others, a motion was finally made by Dr. Elliott, which prevailed, to appoint a committee of three to bring this matter before the National Association through its newly elected President, Dr. Thorne, of Toledo, Ohio, and get an expression from the Association. The motion was carried unanimously and the following committee appointed: Drs. Geo. Ross, Richmond, Va.; W. H. Elliott, Savannah, Ga., and Dr. N. Y. Leet, Scranton, Pa.

"On motion of Dr. W. J. Galbraith, of Omaha, Neb., the chairman of the Committee on Permanent Organization was authorized to call a meeting on or before Nov. 1, 1894, at a place to be hereafter selected for the purpose of perfecting the organization. He was also instructed to take such steps, in the meantime, as would be deemed proper and wise and which would be of assistance in enabling the committee and the charter members to secure the best organization possible.

"On motion, the meeting adjourned to re-assemble at the call of the Chairman of the Committee on Permanent Organization.

"C. K. COLE, M.D., Chairman of meeting.
"R. HARVEY REED, M.D., Secretary."

It is a matter of record that the question of resolving the National Association of Railway Surgeons into a delegatory body was duly brought before the members of the National Association by its President, Dr. S. S. Thorne, in a strong speech favoring the same, which was duly opposed by Drs. Willis P. King and W. B. Outten and the motion to make such a change defeated.

With the instructions given your committee, its members felt that their duty to the railway companies and the members on permanent organization was to proceed to carry out the instructions given them at the meeting held in the Tremont House, which they proceeded to do in the following manner:

1. The members of the committee proceeded at once to interview the presidents and managers of quite a number of the leading railroad companies, in person, in order that they might obtain from them their candid opinion relative to such an organization which should be their guide as to the propriety of attempting to complete the organization. An interview of these officials soon convinced them of the fact that an organization of this character would meet with their hearty approval and support.

Whereupon the following circular was issued, accompanied by a suitable blank, whereby those surgeons favorable to such an organization and who desired to enter it could signify the same in writing which was returned to the chairman of your committee, who has on file in the archives of this proposed Academy ninety-one formal applications and seven informal written applications, making a total of ninety eight applications from all sources, from which must be deducted six who requested to withdraw their names as charter members, leaving a balance of eighty-five formal applications and seven informal applications or a net total of ninety-two.

AMERICAN ACADEMY OF RAILWAY SURGEONS.

Office of Chairman of the Committee on the Permanent Organization.

COLUMBUS, OHIO, Sept. 10, 1894.

MY DEAR DOCTOR:—In pursuance of the instructions given at the meeting held at the Tremont House, Galveston, Texas, the committee on permanent organization begs leave to submit the following synoptical report:

After diligent investigation, both by letter and personal interviews, of a great many of the leading active railway surgeons, and eminent contributors to the literature of railway surgery in this country and the Dominion of Canada, the committee has received, practically, universal encouragement, favoring the organization of an American Academy of Railway Surgery which shall have in view, among other laudable objects, the elevation and improvement of the science of railway surgery and the study of allied medico-legal questions.

The committee is pleased to inform you that they have presented the subject pertaining to the organization of an Academy, which shall have for its object, "the higher order of rai way surgery," with a limited number of permanent members, who shall be "worthy and well qualified" for membership in this proposed organization, to a large number of railway officials, and so far have only met with the most cordial encouragement.

Having received such enthusiastic encouragement from each of these sources, we have decided to call a meeting of the charter members, in Chicago, at a date to be fixed hereafter, during the latter part of October, for the purpose of effecting a permanent organization.

In addition to the executive sessions, the committee has arranged an excellent program of scientific work, which will be announced later.

With this brief preliminary explanation, the committee will be pleased to have you signify your desire of becoming a charter member by signing the inclosed blank and returning the same to the chairman of the committee, at your earliest convenience, and thus facilitate the work of completing the arrangements for the coming meeting.

Very respectfully submitted,
R. HARVEY REED, M.D., Chairman, Columbus, Ohio.
W. H. ELLIOTT, M.D., Savannah, Ga.
C. K. COLE, M.D., Helena, Mont.
Committee on Permanent Organization.

In no instance has your committee persuaded any surgeon to enter the proposed Academy. Its members adopted the policy of laying the proposed plan of organization and its objects before those railway surgeons who, in their judgment, would make desirable members of such an organization and allow them to judge for themselves of the merits of the same.

The committee recognized the fact that there are many railway surgeons in the United States, Canada and Mexico who would make desirable members of the Academy in addition to those invited and, whom we trust, will at no far distant day be recommended to fellowship in the same.

2. Having received such unquestionable encouragement from so many leading railway surgeons throughout the United States, the Dominion of Canada, and the Republic of Mexico, your committee decided to present the matter to the management of the leading railroads of this country in a formal circular letter, of which the following is a copy, and from which it received a great many replies, all of which were favorable to the proposed organization:

COLUMBUS, OHIO, Sept. 27, 1894.

DEAR SIR:—Realizing the great burden which, for years has been imposed upon the railway companies of this continent, by the yearly transportation of thousands of surgeons for the purpose of attending their annual meeting, it has become evident to many of the leading railway surgeons that it is in the interest of their respective companies to organize an association, with a limited number of representative members, consisting only of active and experienced railway surgeons.

The committee appointed for the consideration of this very important question would be pleased to have you give your views and advice regarding the proposed organization.

If, after a careful and candid consideration of the subject it is deemed advisable, and in the interest of the railway companies of this continent, to put into operation such an organization, with a limited number of members, that shall have for its object the scientific study of the many perplexing problems that are constantly arising in railway surgery, will your company be willing to encourage such an organization in this work, by granting a limited amount of transportation, in the usual manner, for the purpose of enabling its members to attend their annual meetings?

As arrangements are being made to hold a meeting in Chicago at an early date for the purpose of taking final action on this matter, we will consider it a great favor to receive an early and frank reply from you in regard to this organization.

Very respectfully submitted,
R. HARVEY REED, M.D., Chairman,
Consulting Surgeon B. & O. R. R., Columbus, Ohio.
W. H. ELLIOTT, M.D.,
Chief Surgeon Cent. R. R., of Ga., Savannah, Ga.
C. K. COLE, M.D.,
Chief Surgeon Montana Central R. R., Helena, Mont.

(To be continued.)

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This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, Venetian Building, Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the *Editor*, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, DECEMBER 22, 1894.

SOME CHRISTMAS REFLECTIONS.

"Without the door let sorrow lie;
And if for cold it hap to die,
We'll bury't in a Chri-tmas pie
And evermore be merry."

In this season when "the Christmas bells, from hill to hill answer each other in the mist," the festival of the Nativity appeals to all alike.

The ancient pagans, and as well the old Germanic tribes, celebrated the winter solstice, and the return of the fiery sun wheel, long before the Christians adopted the 25th of December as the date of their great celebration, and thus for ages, festal usage has set apart this time for good fellowship and jollity.

Physicians are so accustomed in their daily life to perform acts of charity, that the profession, as a whole, may be said to live in perpetual Christmas time, and in many lives the singing of the Yule log fire is constant. The doctor on his rounds of mercy, sees the holly buds and the Christmas wreaths in the windows of the wealthy, and that the abodes of the wretched are made more tidy, in harmony with the softer spirit that pervades the multitude.

He often wonders if patients are not more tractable and their ills less grievous at this season than any other, when even death seems robbed of its terrors as it approaches its victim, whose otherwise happy surroundings have quieted his mind and tranquilized his feeble frame. Even those doomed to support through life a deformed body, or crippled limb, seem to have forgotten their suffering, amid the general generosity and gladness.

The beautiful story of VOLKMAN's about the folded angel's wings which lie hidden beneath the unsightly hump of the hunchback, have lightened the sorrows of many a little sufferer, and made his burden easier, and noting the effect on the patients of the soothing influence of such stories and of the Christmas tide, *every physician must wish that it were always Christmas with his patients*. With this object lesson before his eyes, that doctor would indeed be a strange being, if his voice did not grow more gentle, his hand more delicate in its touch, his sympathy more deep, his pity for suffering more profound, and his humanitarianism more tender, and in this holiday season looking at the profession itself, again the lover of his art and its *personnel* would say: "*Would that it were always Christmas with our profession.*"

THE ANTITOXIN PRODUCTION.

Already there have been put on the market one or more fraudulent antitoxins for diphtheria. The German preparations that have found their way to this country, a few small packages, here and there, are the only ones that are known to be reliable and guaranteed. Inasmuch as the time necessary to grow the first crop of antitoxin can not, under the methods generally adopted, be less than six months, it will readily be seen that some of the rapidly matured plants must be throwing off an immature and worthless article. After a little while there will be an increased number of producers, and there will be an improvement of methods—there is one such improvement already in use in this country, namely the use of oxygen as a means of "forcing" the cultures—and there will be an abundance of good and relatively cheap product. Two boards of health, those of New York City and Brooklyn, have taken up the work of producing the antitoxin, but their stocks can not become available to the public for four or five months.

DRS. PRUDDEN and BIGGS, of the New York City Board, have already pointed out the necessity of great care in the housing of the animals that are used, and of experienced bacteriologists to conduct the experiments. They themselves are giving no small portion of their attention to conducting the test experiments by which the merits of the various preparations now offered for sale must be determined.

SANITARY SCIENCE VS. MEDICAL PRACTICE.

From time to time the JOURNAL has essayed to give expression to a fact which forces itself with constantly increasing pressure upon the attention of every medical man—to-wit, that the struggle for medical existence is, year by year, growing sharper and more strenuous; and to a thought born of that fact—to-wit, that the rapid development and practical results of preventive medicine, due entirely to the volunteer and gratuitous efforts of the medical profession itself, may be a potent cause of this increasing strenuousness, by warding off disease which, otherwise, the doctor would be called upon to treat to the benefit of his professional income. We have

taken as cheerful a view of the situation as "Mark Tapley" himself could have done, and have suggested one method by which the public, kept well by improved sanitary conditions and the efforts of preventive medicine, may be made to pay in part for the benefits it receives. But we recall the first aphorism of HIPPOCRATES—*Ars longa, vita brevis est*—and are forced to admit that a good many of us will die off long before the adequately paid D.P.H. will be numerous enough to relieve our overcrowded ranks.

Our medical "kin beyond the sea" are confronted with the same condition, and it has given rise to some interesting correspondence recently. One writer speculates as to what would be ABERNETHY'S reflections if he could see the crowded theater of one of the medical schools of the period, filled with young men "beginning the study of the profession whose ranks are already so overstocked," and proceeds to moralize in a strain which the *Lancet* characterizes as "an argument against all medical science which aims at preventing disease, inasmuch as disease is the *raison d' etre* of the medical profession." The logic of our contemporary is not clear and the foundation for the charge can only be surmised, since the text of the letter is suppressed on the ground that it is "too long for insertion;" but in a rejoinder to the editorial comment, the writer, MR. M. H. FEENY, insists that he has been misconstrued—that he had merely "maintained that the advance in sanitary science and that in machinery were alike in their results;" each had reduced the number of men who could be furnished profitable employment. And this does not imply that either the advance in sanitary science or that in machinery is not a social and scientific blessing; "it merely goes to explain a fact—namely, the 'unemployed.'"

A more optimistic view of the situation is that taken by "Pepsin," who reviews MR. FEENY in a late number of the same periodical, and affects to believe that sanitary science, while shielding the public from such scourges as cholera and other epidemics, "provides us, by so doing, with an ever-increasing number of ill-developed and delicate patients who would otherwise be swept out of existence. In short, does it not promote the survival of the 'unfit,' the charge of whom largely develops upon us, whose care and skill are so constantly in requisition, and are the means so often of enabling them to reach the adult age, and in many cases their three-score years and ten, at the same time with much less risk to ourselves?" The gentleman begs the question. Where medical "care and skill are so constantly in requisition" there is nothing of which to complain.

"Pepsin's" digestion is evidently of the most eupeptic character; no one whose stomach was not in good working order and fully supplied with the best of material upon which to work, could take so roseate a view of the situation.

[1] *Vide* "A New Field for the Medical College;" "Activity among Health Authorities," etc.

COLONY FOR EPILEPTICS IN ILLINOIS.

At the last session of the Illinois State Medical Society, a resolution referring to the establishment of a State epileptic colony or institution was introduced and referred to the Committee on Legislation, with instructions to take such action as might lead to the introduction of a measure at the coming session of the Legislature for the founding of such an establishment. The committee has already had a meeting, and the preliminaries for the proposed legislation have been instituted.

At the present time a considerable number of epileptics are provided for in our State asylums, but these are largely those who by their acts and tendencies have shown themselves dangerous to society by reason of the mental aberration induced by their disease. They require restraint and absolute separation from society, and in the insane hospital are often considered the most troublesome and difficult of all the inmates. An epileptic colony of the kind proposed, on the plan of the successful establishment at Bielefeld, in Westphalia, and others in France, Germany, Switzerland and Sweden, could hardly care for such, without special provisions that would approximate it to an asylum in many of its more important and conspicuous features. This, it is presumed, is not the idea of those active in this movement in Illinois. The plan is rather to make a refuge for those who are simply incapacitated by their disorder from properly helping themselves, to put them under conditions most favorable to their moral and physical welfare, and, so far as possible, to prevent their becoming a burden to society, by enabling them to work for their own support. There is no reason why, with the class referred to, this last desideratum should not be largely attained; epileptics are not less industrious than other individuals, and when relieved from the necessity of active competition with those not similarly disabled, and under sympathetic and judicious direction, there is no reason why they should not be to a large extent, at least, self-supporting.

It would take time to completely organize the institution and secure the plant required for this purpose, and some aid might be obtained by requiring some payment for board and care from those who, while availing themselves of the advantages of the institution, were able to contribute, but this would not be considered an essential feature of the plan. It is in every way desirable, however, that the self-respect of the beneficiaries should be promoted, and this can be done by making the establishment, as far as practicable, different from an almshouse, by encouraging them to feel that they are doing some good

and may become of some use to society, even under their peculiar disadvantages. The functions of such an institution should be partly those of a hospital and partly those of an industrial establishment, and the latter would with this particular class largely include the former. The training of juvenile epileptics would also come within its scope and form an important portion of its work. Whether or not it could relieve the insane asylums of the insane epileptics, often less dangerous under proper management than they are supposed to be, is a question that time and experience will have to solve; at present it may not seem advisable to include this among the objects of the institution. At Bielefeld this class is also provided for, to a certain extent at least, and this may have been necessitated by the conditions.

There are several important questions to be considered in connection with the plan, such as the conditions of admission and discharge, the legal status of inmates, the relations of the sexes, etc., etc., but none that should stand in the way of the successful inauguration of the project, or that ought to be considered as difficult or insolvable. The State of Illinois, the third in the Union in population, has a duty in this regard and should not be behind any of its sister commonwealths. It has the unfortunates to be cared for and the advantage of the experience of other communities to enlighten its efforts to provide for them.

It will be understood that only a certain proportion of the whole number of epileptics are in actual and pressing need of the benefits of such an institution. In Illinois, however, with its 4,000,000 of inhabitants, there will be no difficulty in finding a sufficient number for whom such an institution is a necessity; who without such a refuge are daily becoming vagabonds, paupers and even criminals. Epileptics, with their irritable weakness from their disease, often need moral control, and while in no way a reformatory, the establishment will have a useful function in preventing some of these unfortunates from being or becoming bad citizens.

It is to be hoped that every proper consideration will be brought before the Legislature in favor of this project, and that the incorporating act will be so drawn as to insure its usefulness in every possible way. The Craig colony at Mt. Morris, New York, affords a good example of a plan which might well be followed in the proposed Illinois colony.

THE ASSOCIATION LIBRARY.

Seventy-four boxes of books were this week received in Chicago, by the NEWBERRY Library from the Smithsonian Institution, where the volumes have been stored for several years. There has never been any catalogue of these books, and the exact nature is to-day somewhat conjectural. Under the terms of a document which by euphemism is called a deposit or loan, but a document which is in reality a deed of gift, the Library trustees agree to bind and catalogue these waifs at the earliest possible date. One thing is definitely known about this collection, and that is that it is rich in the possession of very many volumes of transactions of various foreign scientific societies, which are contained in few other collections.

With this Christmas addition from our ASSOCIATION, and the donation of the SENN collection last year, the NEWBERRY LIBRARY MEDICAL DEPARTMENT takes rank with the best medical libraries in the United States.

THE JOURNAL IS NOW COPYRIGHTED.

At the last meeting of the Committee on Management of the Board of Trustees, PRESIDENT GARCELON presiding, a resolution was passed directing the Editor hereafter to have the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION copyrighted each week. The Trustees directed that all journals should have full and complete permission to reprint any article appearing in the JOURNAL, or part thereof, provided due credit is given to this journal when the article or item is reproduced.

CORRESPONDENCE.

Electrocuted Horse—Post-Mortem Examination.

PANA, ILL., Dec. 14, 1894.

To the Editor:—I send you herewith some printed notes of the *post-mortem* appearance of a horse killed by electricity. As the subject of whether or not a man can be killed by electricity is agitating the public mind through the press at present, I thought perhaps this incident might be of general interest.

In looking up the literature of the subject, I find scarcely any mention made of the *post-mortem* appearance of a body killed by electricity. In the *Annual of the Universal Medical Sciences* for 1891, Vol. v., Section C, page 30, Dr. Rockwell says: "The reported autopsies on patients killed by currents of high potentials are few. In such the blood is usually fluid; the viscera are congested; small hemorrhages are frequent. Peterson thinks there are no pathognomonic signs of death by electricity, but that it divides and disarranges the fine molecular structure of the body." Hence, as confirmatory of the above statement, I send you this. To make the matter more intelligible, I also send a newspaper account of how it all happened:

POST-MORTEM APPEARANCE OF A HORSE KILLED BY ELECTRICITY.

The following is an account of the condition of the two horses belonging to D. M. Pence, that were electrocuted near the Union depot, as found by Dr. Conner, who held a *post-mortem* examination:

"I arrived on the site of the accident in a very few minutes after it occurred. The animals were perfectly limber in all joints. There was not the slightest tremor in a solitary muscle. Their eyes were glazed. It was a wet, foggy morning about 8:30 A. M. The bodies were steaming hot from their recent drive. In about six hours after the electrocution the carcasses were put upon a dray and hauled over a mile and dumped.

"The left shoulder was removed and three ribs sawed across thereby entering the thorax. The first thing to attract attention was the fluid state of the blood and the fullness of the blood vessels. All the peripheral blood vessels, arterioles and veinlets were filled with dark blood. The blood was very dark and without its characteristic odor. The lungs were peculiar. The larger bronchial tubes were slightly filled with a pinkish froth. The lung substance was congested with black blood which made it resemble liver in its gross appearance; only a small portion of the border of the lungs had anything like the natural appearance of lung tissue. The lungs had the appearance of the *post-mortem* conditions of a late, or at least the second stage of pneumonia, "hepatization." A piece of a lung was cut off and dropped into water and readily sank.

"The heart was soft in texture, but neither dilated or contracted. There were no clots in or about it nor in any of the larger blood vessels. I was surprised at the size of the heart, for it was fully as large as that of an ox which would weigh sixteen or eighteen hundred pounds. Neither the brain or spinal cord were examined.

"Conclusions: From the above I should say:

"1. That the horses were killed instantaneously.

"2. That when a man is thoroughly electrocuted he is beyond any human power to resuscitate him. Just the same as he would be if he had been killed by lightning.

"3. That a person may be only stunned by electricity the same as by lightning, and that if proper means are resorted to early enough there are great hopes of reviving him.

"4. That it is our bounden duty to make every legitimate effort to resuscitate, or better, revive a person stunned or partially killed by electricity or lightning, for we may never be certain as to whether a person is dead or only stunned when so struck.

"I desire hereby to thank Dr. Trinder, veterinary surgeon of this city, for his kindness in assisting me so well in the above operation."—(From the *Pana Palladium*, Dec. 6, 1894.)

J. J. CONNER, M.D.

City Hospital in Wheeling.

WHEELING, W. VA., Dec. 14, 1894.

To the Editor:—For many years, Wheeling had but one hospital, the Wheeling Hospital, which is owned and controlled by the Catholic church. It has never had a regular medical and surgical staff, nor any special provision for charity cases, although at times such cases are received, especially in emergencies. For many years the late Dr. John Frissell did most of the work, both medical and surgical at this institution, of which he was really the founder. His son, Dr. C. M. Frissell, and Dr. G. Ackermann, are his successors, although any physician may attend his own private cases there. About three years ago another hospital was opened under Protestant auspices, in the hope of providing still more liberally for the treatment of the sick poor. A large building formerly used as a female seminary was purchased, and with some changes was made to serve admirably its new purpose. It stands on an acre of ground, on a high plateau away from the noise of the busy streets. The halls are large, and the wards and private rooms well lighted and ventilated, and neatly furnished. The building contains more than fifty rooms and can accommodate over a hundred patients.

This institution, although named the City Hospital, is in no way connected with the city government and receives no aid from it. It has no endowment, but depends for its support upon the receipts from pay patients and the contributions of the benevolent. The board of directors is composed of twelve prominent business men. This board is ably assisted by the Woman's Hospital Association, of which Mrs. W. F. Butler, daughter of the late Dr. W. J. Bates, is the efficient President. The hospital is superintended by Mrs. Johnson, formerly matron of the West Penn. Hospital, Pittsburg. A training school for nurses has been established in the institution, lectures being delivered systematically and practical instruction given as well, by the members of the medical and surgical staff, which was originally constituted as follows:

Physicians: Drs. S. L. Jepson, E. Hoge, H. B. Bagaley, R. M. Baird, R. H. Bullard, Eugene Hildreth. Surgeons: L. D. Wilson, J. L. Dickey, E. C. Myers, A. F. Stifel, R. J. Reed, J. Schwinn.

Of the above, Dr. Hoge resigned and was succeeded by Dr. W. E. Stathers, and Dr. Stifel, deceased, by Dr. F. J. L. Hipp.

What other city the size of Wheeling can boast of nine ex-internes among its staff? We have also two private hospitals and a third in course of construction. There is no demand for so many, and as the City Hospital is unselfishly organized and conducted solely for the public good, it should be liberally supported.

If this should meet the eye of any former citizen of West Virginia, who has met with abundant prosperity in the great West, and feels like testifying to his appreciation of his early home, he can not do so in a better way than by extending aid to our young and very needy City Hospital.

S. L. JEPSON, M.D.

Treatment of Typhoid Fever.

HASELTON, OHIO, Dec. 17, 1894.

To the Editor:—In reply to Dr. A. S. Caldwell, of Freeport, Ill., who has published a letter in the JOURNAL of December 15, in which he says Dr. Woodbridge's treatment of typhoid fever has failed in his hands to show the marked change in the temperature curve, which Dr. Woodbridge's charts show in his own practice, I wish to say I have had some experience with Dr. Woodbridge's treatment, and having followed cases with him, I can say the treatment will do all that Dr. Woodbridge claims for it, if it is intelligently carried out. If the treatment is harmful in Dr. Caldwell's opinion, will he please state which he considers the most dangerous; the gr. one-sixth calomel, the gr. one-sixtieth podophyllin, or the non-toxic eucalyptol or guaiacol.

I have treated, and seen Dr. Woodbridge treat, the most severe cases of typhoid fever with better results than I have ever known him to claim. The treatment far exceeds in value any other treatment I have ever seen published or heard advised. Truly yours,

J. O. YOST, M.D.

A Rabid Dog Bites Seventeen Persons.

MOUNT VERNON, OHIO, Dec. 15, 1894.

To the Editor:—We have had an experience here for a few days past with what was supposed to be a rabid dog and the victims of his work (eleven in number) are now at a Pasteur institute in your city, conducted by Dr. Lagorio (if I remember rightly). The so-called rabid dog was sent after the killing to Dr. Probst, Secretary of the State Board of Health, and a presumptional diagnosis of rabies was made, and also inoculations have been instituted upon some guinea pigs and rabbits, for the purpose of making a conclusive diagnosis. The dog attacked seventeen persons (from about 6 P.M., to 10 P.M., when he was finally killed), eleven of whom had the flesh broken to a greater or less degree. The scare here has not abated and the destruction of canines is progressing steadily. Feeling that the subject is one of general interest, I am prompted to call attention to these cases so that you may, if possible, give us some special information in our JOURNAL.

Respectfully and fraternally,

BALDWIN B. SCOTT, M.D.

Cleft Uvula—(Case of Dr. Foster).

LOS ANGELES, CAL., Dec. 13, 1894.

To the Editor:—The JOURNAL of December 8 contains the report of an interesting case of cleft uvula, by Dr. Hal Foster, of Kansas City. I say, cleft uvula, because it is a case of cleft uvula rather than double uvula. I have a similar, if not identical case, in a boy of 12 years, a native Cal-

ifornian. There is nothing in his voice to indicate the anomaly, neither is there any interference with deglutition.

I can not believe the cleft in Dr. Foster's case has anything in particular to do with phonation, as the "fine" voice of his patient is in contrast with a rather coarse voice in my patient. The cleft is also complete in my case and does not involve other tissues or organs. The two rather long appendages frequently adhere but oftener separate and are carried outward and upward, until they are applied to the lower border of the soft palate on either side. Excision, or amputation of both appendages in each case will probably be best on account of titillation.

It has been suggested that the vermiform appendix was made for the benefit of the doctors, and the same may be said (with our existing knowledge of its office) of the uvula, though I can not quite agree with many in the complete ablation of the uvula for slight causes or elongation. Remove the elongated portion and if it elongates operate as often as indicated. While cleft palate is quite common, complete cleft of the uvula is comparatively rare,

Very truly yours

J. H. Davisson, M.D.

PUBLIC HEALTH.

Decreasing Death Rate of Stockholm.—Dr. Klas Linroth, of Stockholm, has recently published some interesting demographic tables of that city, the most remarkable of which is that showing the following diminution of mortality during the last thirty-four years:

Years.	Deaths.	Population.	Deaths per 1,000.
1860	3,390	112,391	30.16
1870	4,037	135,598	30.22
1880	4,697	162,436	28.79
1890	4,699	228,218	20.60
1893	4,840	249,246	19.42

Incredible Mortality Rate of "Croup."—St. Louis is not the only American city in which vital statistics are made a farce by the carelessness, indifference, or worse, of physicians in certifying to the causes of death. But just now the Health Commissioner, Dr. George Homan, is reported to be indignant over what is styled "the persistent efforts of doctors to conceal the true cause of death when it is diphtheria." Added to this is a laxity in notifying the Department of existing cases of the disease. This is common in all large cities, and will probably remain so until there is some common-sense, equitable provision for securing the notification of contagious diseases. How farcical vital statistics, based upon the present system of returns, may be made, is shown by some of the tables in Dr. Homan's last report—that for the year ended March 31, 1894. Thus, in "Table 1, Record of Communicable Diseases," the total number of cases of diphtheria reported to the Department is 509; total number of deaths, 198—giving a mortality rate of 38.9 per cent. In the adjoining columns are given the total number of cases of "croup" reported—216, with 133 deaths, a mortality rate of 61.5 per cent! Dr. Homan wisely omits to state the mortality rates of these diseases, but gives the naked figures and leaves the reader to draw his own conclusions, which, certainly, can not be flattering to the diagnostic ability of the profession except at the expense of its therapeutic skill.

Shall Membranous Croup be made Reportable to Boards of Health?—The New York City Board of Health has for some months past required the reporting of cases of true croup. Dr. Emery the Commissioner of Health of Brooklyn, has recently, December 1, issued an order making the same requirement. Before taking this step all the larger medical societies were addressed regarding this subject, and he received from those societies replies sufficiently favorable to make him feel safe in making a regulation, as indicated in the following:

"By virtue of the authority conferred on me by Section 5 of the Sanitary Ordinances of the City of Brooklyn, and in conformity with the unanimous expression of the principal medical organizations of this city, I hereby notify you that true or membranous croup has been added to the list of diseases to be reported to this Department. I take this occasion to call your attention once more to the culture stations established in various parts of the city, and to request that in all cases of diphtheria and croup, you will either make cultures yourself or allow an Inspector of this Department to do so. When bacteriologic examinations of these cultures demonstrate the absence of Klebs-Löffler bacilli, school permits will be issued previous to the expiration of the ordinary period of exclusion. In order to limit as far as possible the spread of diphtheria, it is urgently recommended that the very poor, who can not afford to pay for medical attention and are unable properly to isolate patients, should be advised to take advantage of the desire of this Department to care for all such cases at the Kingston Avenue (or City Contagious Disease) Hospital. Free transportation will be furnished and in the immediate future the antitoxin treatment will be employed. For the latter reason it is important that the cases should reach the hospital at the earliest possible period of the disease."

Sanitary Observations during a Voyage to Arabia.—Dr. Justyn Karlinsky, a government physician of Bosnia and Herzegovina, detailed to visit Arabia, furnishes a summary of his sanitary observations to *Annales d'Hygiene*. A large number of pilgrims from these quasi-Turkish provinces yearly visit Mecca and, consequently, can easily bring back infectious diseases from the extreme Orient—to prevent which the authorities have taken energetic measures. Dr. Karlinsky arrived in Jeddah at the end of June. The city, surrounded by a high wall, has no aqueduct or other water supply save that brought in on camels' backs and stored in small cisterns. The climate is very hot and dangerous to Europeans. Part of the port has become a marsh through seepage from the canal. The pariah dogs are relied upon to act as scavengers, devouring offal, carcasses of animals, etc. The number of pilgrims annually varies between 80,000 and 500,000. According to Dr. Chaffy, the Egyptian delegate, the deaths from cholera during the last invasion were 10,000, which Karlinsky believes below the reality. There was not enough assistance to carry the sick to the hospitals or bury the dead. In one week there were 60,000 pilgrims in Jeddah. Heaps of corpses were left lying on the sand for days before being buried in it. One of the most crying evils was the embarkation, the ship agents speculating on the throng until the Turkish Government was forced to step in and fix the price of passage. The author embarked with fifty-seven others on an old vessel which already had 1,100 pilgrims on board. Before sailing there had been seven deaths and thirty-three more occurred on the voyage, twenty-seven of them due to cholera. The ship's papers were garbled, so that on their arrival at El-Cor, in spite of the yellow flag, synonymous with quarantine and epidemics, these papers mentioned only seven deaths, all due to natural causes. Another defect is the absence of baths; in the ritual ablutions the pilgrims bathe only their faces, hands and feet; during their sojourn in Jeddah they have no occasion to bathe, and the scarcity of water on shipboard renders a complete cleansing impossible. Many of the pilgrims are covered with abscesses, boils and sores. During their stay in quarantine they sleep on the sand, the temperature of which is much lowered at night; hence chills, rheumatism and bronchial catarrh are rife among them. Dr. Karlinsky thinks that the international measures taken to prevent the introduction of cholera into Europe still leave much to be desired.

Demography of Japan.—The following synopsis of a report made by Dr. Nagayo Sensai, Director of the Central Sanitary Bureau at Tokio, to the Minister of the Interior, possesses a timely interest. This report, which is published in full in the *Journal d'Hygiene*, covers the year 1890—the twenty-third year of the Meigi—but has only recently been made public. Under the heading, "Movement of the Population," the following figures are given: Births, 1,145,174

(64,536 less than in 1889), a natality rate of 28.15 per 1,000, or, on the total population of 40,688,000, one birth to 35.53 inhabitants; the natality rate for the decade 1881–1890 was 26.17. Deaths, 821,043, a rate of 20.18 per 1,000; the highest rate, 28.07, was in Osaka Fu, the lowest, 16.35, in Hakodadi; among the causes of death, affections of the digestive tract lead the list, with 193,690 deaths; diseases of the respiratory apparatus rank next, with 137,699 deaths, and infectious and contagious diseases third, with 78,583 deaths.

Physicians, midwives and druggists: The number of physicians in 1890 was 40,215, or a little over 1,000 of population to each physician; of these, 5,593 were authorized to practice upon passing examination, 1,340 upon the diploma of the Imperial University, 1,356 upon the diplomas of local medical schools, 19 upon foreign medical diplomas, and the remainder were engaged in practice before the reform of the laws on the practice of medicine. The number of licensed midwives in 1890 was 828, of whom 218 were licensed during the year; in 1880 there were only 274 midwives and 457 in 1888. There were 2,689 pharmacists in 1890, of whom 142 were graduates of the University, and the remainder had passed the old examinations; there were also 10,390 druggists and 1,201 manufacturers of chemic and pharmaceutic products.

Surveillance of prostitution: The total number of domiciliary visits in 1890 was 1,401,226, as appears from the following table:

Years.	No. of Places.	Daily Average of Prostitutes.	Number of Visits and Examinations.				Proportion of Diseased and Healthy. Per cent.	
			Total Number Visits.	Found Healthy.	Cases of Syphilis.			
					True.	False.	Diseased.	Healthy.
1886	469	21,462	1,101,273	1,064,271	6,254	30,748	3.36	96.64
1888	464	32,463	1,247,269	1,199,767	10,357	37,145	3.81	96.19
1890	469	31,091	1,401,226	1,356,526	7,769	36,931	3.19	96.81

The cases of true syphilis diminished in 1890; the average daily number of prostitutes showed an increase of 1,394 over the year 1889; in two provinces, Wakayama and Okinawa, there were no visits, as no women of this class were found there.

Diphtheria and the Antitoxin.—During the recent Conference of State Boards of Health in Washington, the delegates visited, by invitation, the laboratory of the Marine-Hospital Service where Passed Assistant Surgeon J. J. Kinyoun, U. S. M.-H. S., gave an interesting and instructive *résumé* of the development of the blood-serum therapy of the infectious diseases, with especial reference to the antitoxin treatment of diphtheria. The demonstration was fully illustrated by an exhibit of the appliances in use at the Pasteur Institute in Paris under Professor Roux and a description of the technique there employed in the preparation of the toxin, the immunization of the animal and development in its blood of the antitoxin, and the subsequent clinical application of the remedy, together with the results of his own observations of the treatment of cases in the Paris Hospital for Sick Children. He had been enabled to watch these cases from the time they entered the hospital until their death or recovery; had noted everything that had been done; had maintained a critical attitude and sought sedulously for any flaws in the statistics. At the end of a month of assiduous study, he had arrived at the conclusion that the claims made for the antitoxin treatment of diphtheria were abundantly justified and that "we have in the serum the almost absolute preventive of epidemics of diphtheria"—that "the treatment was past the experimental stage and will in the future be reckoned in value for diphtheria as vaccine is for the prevention of smallpox."

In recounting the origin and development of the discovery of the bactericidal properties of the blood, Surgeon Kinyoun took occasion to refer to the claims of Dr. Nutall to an important share in the honors. Dr. G. H. F. Nutall, now assistant in the Hygienic Institute of Berlin, is an American to whom the Harvard Medical School awarded the Boylston prize for original research while at the Johns Hopkins University; subsequently, while studying under Professor Flügge at Breslau and Gottingen in 1887–8, he made certain laboratory researches which enabled him to demonstrate that the normal blood of various animals possesses bactericidal properties and he made the results of these researches the subject of a thesis, published, it is said, in 1889.

It is announced that the laboratory of the Marine-Hospital Service is now open to a limited number of duly accredited representatives of State or local boards of health who may wish to familiarize themselves with the subject of the diphtheria antitoxin as demonstrated by Passed Assistant Surgeon Kinyoun.

ASSOCIATION NEWS.

The Baltimore Meeting.—The Committee of Arrangements met on December 14, at the new Hotel Stafford which has been selected by the committee as the headquarters of the ASSOCIATION. In the absence of Dr. Chisolm, Dr. Wm. Osler occupied the chair. The organization was completed by electing Dr. T. A. Ashby, Treasurer of the committee.

The Secretary read the following appointments to subcommittees which had been made by the Acting Chairman:

On Ways and Means, Drs. T. A. Ashby, H. P. C. Wilson, Thos. Opie.

On Places of Meeting, Drs. I. E. Atkinson, J. N. Mackenzie, Jno. G. Jay.

On Entertainment, Drs. Rob't W. Johnson, Henry M. Hurd.

On Registration, Drs. J. Edwin Michael, J. Fussell Martenet.

On Hotel Accommodation, Drs. Wm. A. Moale, M. W. Foster.

On Transportation, Drs. T. S. Latimer, L. McLane Tiffany.

On Reception, Drs. S. C. Chew, W. H. Welch, John Morris, Alan P. Smith.

On Printing, Drs. W. A. B. Sellman, B. Merrill Hopkinson.

Appointments for the Committee on Exhibits have not yet been made. For the present, applications for space can be made to the Secretary at Hotel Stafford, Baltimore. It is requested that all official communications to the committee be made to the Secretary as above. Secretaries of sections are requested to send as early as practicable a copy of the titles of papers to be read before their sections. Preliminary reports from the chairmen of the various subcommittees indicate a widespread interest in the coming meeting on the part of the profession of the city. The Committee on Entertainment expects to be able soon to announce the preparations for entertaining the visiting members of the ASSOCIATION. It is hoped that the various section dinners be given on the evening of the first day of the meeting, in order not to conflict with arrangements for the general entertainments.

GEORGE H. ROHÉ, Secretary.

SOCIETY NEWS.

Peoria (Ill.) **Medical Society.**—A regular meeting of the Peoria, (Ill.) Medical Society was held December 4.

Appointments.—Dr. H. C. Emerson, of Springfield, Mass., has been appointed assistant physician in the New Hampshire Hospital for the Insane at Concord.

The Eastern Shore Medical Society, Va., met at Eastville, Va., December 7. Dr. E. W. Robertson, of Onancock, Va., presided. The meeting was one of interest and the attendance was large.

The Syracuse Academy of Medicine held its annual meeting for the election of officers December 4, as follows: President, Dr. Alfred Mercer,; Vice-Presidents, Drs. John Van Duyn and Ely Vandewarker; Secretary, Dr. T. E. Halstead.

Higher Medical Education.—At a meeting of the Faculty of the Barnes Medical College, held December 3, the following resolution was adopted:

WHEREAS, It is the announced purpose of the Faculty of the Barnes Medical College, to aid in advancing the standard of medical education; therefore be it

Resolved, That the Barnes Medical College declines to recognize the degrees of Ph. G., D. D. S. or V. S., as the equivalent of any part of the requirements for graduation adopted by said College.

Banquet of the College of Physicians and Surgeons.—The Faculty of the College of Physicians and Surgeons, of Chicago, held a banquet at the Grand Pacific Hotel, December 13. Dr. D. A. K. Steele was toast-master in the absence of Dr. J. A. Benson. Dr. Binkley responded to the toast of "The Spring Faculty," and Dr. T. A. Davis to "The West Side Free Dispensary." Dr. Wm. E. Quine, "Our College." In the course of his speech, Dr. Quine made the announcement that the committee appointed by the Trustees of the University of Illinois to investigate and report upon the expediency of having a medical department of the University, had reported in favor of having such a department, and recommended the College of Physicians and Surgeons as that department, provided that institution could be obtained at a reasonable price. It is said that the appropriation to be asked for is $160,000.

At a joint banquet held at the Union League Club, Dec. 18, the arrangement is said to have been consummated, so far as can be done without legislative enactment.

The Chicago Ophthalmological and Otological Society.—Regular meeting held at Saratoga Hotel, November 13, Dr. Hotz in chair. There were thirty members and visitors in attendance.

The minutes of the last meeting were read and approved.

DR. THOS. FAITH was elected a member.

The Secretary read the applications of Drs. Mary Hollister, Paul Guilford and E. F. Garvin for membership, and the same were referred to the Committee on Membership.

DR. OAKS showed a case of ulcer of the upper lid. The patient was a boy of 15, who had been struck with a stick in left eye about three months ago. Since that time the eye has been red, but there is no pain or irritation; slight mucopurulent discharge. On everting the upper lid, an ulcer about fifteen millimeters in diameter is seen near the outer canthus. There are no symptoms or history of syphilis. Dr. Starkey suggested it might be syphilis, but Dr. Holmes thought that the absence of any other syphilitic symptoms was against the diagnosis, and suggested tubercle.

DR. BETTMAN showed a case of pterygium operated upon two weeks ago by "subvolution" method. He also showed a man of 47 who three months ago could only count fingers in each eye at ten feet. The right lens was triturated and became opaque. It was removed three weeks ago. V. now equals 20-25.

DR. WILDER showed a case of recurrent iritis with opaque membrane over pupil. Large blood vessels could be seen running over the iris and the membrane was covered with loops of small vessels.

DR. STARKEY showed an opaque metal cylinder for argand burner. A movable outside cylinder containing different-sized holes fitted over this, and the amount of light could be regulated by moving the outer cylinder.

DR. MEYER, of Kankakee, read an essay on "Modern Views of the Architecture of the Nervous System," showing many drawings of nerve tissue.

The Society adjourned by limitation.

C. P. PINCKARD, Secretary.

103 State Street.

NECROLOGY.

JOHN W. PINKHAM, M.D., died December 7, at Montclair, New Jersey, at which place had been passed his entire professional life. He was a native of Gardiner, Maine, and a graduate in arts at the Haverford College. He studied medicine at the Bellevue Hospital Medical College, graduating in 1866. He was one of the founders of Mountainside Hospital, opened in 1891, of which he was the sole consulting physician at the time of his decease. He was a busy practitioner but found time to use his pen, oftentimes his subject being of a sanitary trend; such was his contribution to the "Household Practice of Medicine," and his address in 1884, before the New Jersey Sanitary Association. His subject at that time was the introduction of subsoil drainage of excreta, as a method of sewerage for suburban places. His death took place unexpectedly from cerebral hemorrhage.

EDWARD H. VAN WINKLE, M.D., of New York City, died December 7, nearly 80 years of age. He had been fifty-eight years in the profession.——William A. Morton, M.D., of Liberty, Mo., December 10, aged 72.——O. P. Geer, M.D., of Alloway, N. Y., December 7, aged 84.——Warren A. Knapp, M.D., of Pottstown, Pa., December 8, aged 30.——C. H. Butler, M.D., of Columbus, Ind., December 12, aged 78.

I. BERNARD BRINTON, M.D., died in Philadelphia December 6. He was born in New Hope, Pa., August 16, 1835, and was appointed a surgeon in the regular army at the outbreak of the war, and was Medical Purveyor of the Army of the Potomac under General Meade. He founded the Botanical Club of Philadelphia, and was a member of the Academy of Natural Sciences, of that city.

MISCELLANY.

License Fee for Transients.—By a recent act of the city council of Muscatine, Iowa, transient physicians attempting to practice in that city will be charged a license fee of $25 per day.

Bacteriology at St. Petersburg.—A professorship of infectious diseases and bacteriology, with an infectious disease clinic attached thereto, is to be established at the Military Medical Academy of St. Petersburg. The clinic will be equivalent to a small hospital, since fifty beds will be put at the command of the professor.

Changes of Address.—Dr. Chas. G. Cannady to 112½ S. Jefferson Street, Roanoke, Va.——Dr. Walter Lindley to 524 South Main Street, Los Angeles, Cal. He has been elected to the chair of gynecology in the Medical College of the University of Southern California.——*American Journal of Insanity.* The office of publication of this journal has been changed from Utica, N. Y., to Chicago, 34 Washington Street.

Intestinal Antiseptic.—Paraform, according to Aronsohn (*Jour. der Pharm. v. Elsass-Loth.*) is a very strong intestinal antiseptic, superior to B-naphthol, iodoform, salol, dermatol and benzonaphthol, and having a marked inhibitory action on the propagation of bacilli. Paraform is a solid, white crystalline polymer, produced by heating formaldehyde in watery solution. One grain is said to be capable of completely sterilizing 200 grammes of urine.

Tuberculosis in a Lioness.—Strauss reports (*Archiv. Med. Exper.*) the necropsy of a lioness, 5 years old, which had been progressively emaciating for seven months. Both lungs were strewn with nodules, apparently fibrous; on section these proved to be small cavities, varying from the size of a pea to that of a large nut; the inner walls of these cavities were very smooth and studded here and there with grayish granulations; these lesions were developed in a surrounding interstitial sclerosis. The lungs presented a type of fibroid phthisis. Bacilli were found on the surfaces of the cavities. The localization in the lungs exclusively proved inoculation by the air passages.

Inter-State Commerce Commission.—The annual report of the Inter-State Commerce Commission has the following in regard to safety appliances on railway equipment: The "Commission calls further attention to the legislative enactment requiring the application of automatic couplers and other appliances on the locomotives and cars of the railways, and gives figures showing to what extent equipment had been fitted with such appliances up to June 30, 1893. It is stated that all new cars ordered by the railways are being supplied with automatic couplers, and a large proportion with air-

brakes. The accidents of the year show little decrease on account of the use of automatic couplers, and such a result is not expected until more uniformity in such appliances has been attained."

The Holy Coat of Argenteuil.—At the request of Monseigneur Goux, Bishop of Versailles, the famous seamless Coat, preserved as a relic in the church of Argenteuil, has been examined by MM. Lafon and Roussel, scientific experts, for the purpose of determining the exact nature of the spots on the garment, which, according to tradition, are the blood of Christ. The experts report, after describing the tests employed, that—"From the portion of the Coat marked with rust-colored spots we obtained: 1, a faint green coloration with tincture of guaiacum and essence of turpentine; 2, the revival of the red globules of blood with the artificial serum; 3, the formation of crystals of hemin or of chlorohydrate of hematin. These indications are sufficient to enable us to affirm that the spots examined are actually due to blood—and to human blood. Judging by the whole of our analysis we presume that this blood is very old."

An American Physician at the Korean Battlefields.—Dr. Wm. J. Hall, with two other Americans, was enabled to visit the battlefield of Pyong-Yang, in Korea. In this fight about twenty-four thousand troops were engaged, and the Chinese loss was very heavy. These Americans were too late for the battle, but rendered services to the wounded in the hospitals. Dr. Hall was also called upon to visit, in consultation with the Japanese surgeons, one of the generals of the Japanese army, who had been wounded. Dr. Hall is 35 years old, and a native of Canada. He was educated at the Queen's University at Toronto, Ontario, after which time he took up his residence in New York City with the design of fitting himself for work as a medical missionary in the far East. He identified himself with the work among the poor, as carried on by the International Medical Mission School, and in the year 1889 took his medical degree at Bellevue Hospital College. He has been in Korea since the winter of 1891, part of the time at Seoul and part at Pyong-Yang, near the place where the battle was recently fought.

Skiascopic Examination of School-Children's Eyes.—Nels and Diederichs (*Leipzig, Archiv. für Angenh.*, xxix, 1) have examined the eyes of 1,875 scholars aged from six to fourteen years. Ametropia was determined by the right image. The average of emmetropia was from 30 to 34 per cent.; of myopia from 18 to 21 per cent.; of astigmatism 12 to 13 and of hypermetropia 13 per cent. The number of myopes progressively increased from the lower to the higher classes; the number of hypermetropes, on the contrary, diminished, and in less considerable proportions; thus, while myopia increased from 15 per cent. to 26, hypermetropia decreased only from 51 to 39 per cent. The number of anisometropes was considerable; of 422 myopes 241 were anisometropic, and in these the right eye showed a marked degree of myopia in 55.1 per cent. of the cases. These figures seem to confirm the opinion of Sulzer, who found that in myopia of unequal degrees in the two eyes the right eye is the most affected, because children habitually turn the head to the right. But if the same inquiry be pursued in hypermetropia it is found that the right eye is the shorter in 51 per cent. Evidently there is no relation here to the inclination of the head.

Deep Well Pollution.—The useful lesson that the mere depth of a well does not necessarily afford evidence of the purity of its water, is furnished in the history of a well near Edinburgh, bored to a depth of 294 feet from the surface. The well was sunk at the site of a spring, 800 feet from a quarry which received the sewage of some twenty-five individuals—the sewage disappearing, as is believed, into fissures in the rock. At a depth of 114 feet the water was found to be pure, but when the well was subsequently bored to an additional depth of 180 feet it was found to contain organic impurity. This additional boring had pierced an impermeable bed above which the water was pure, but below it the sewage had found its way through rock fissures from the quarry 800 feet distant and 60 feet higher. The source of pollution of the deeper water supply was made clear by bacteriologic examination; the cracks and fissures had allowed the sewage to pass in an almost unaltered condition, so that the bacteria discovered were not materially modified in their morphologic and biologic characters, as would have been the case had the sewage been subjected to the usual processes of filtration and aeration. The case is, also, cited by Dr. Houston, in the *Edinburgh Medical Journal*, as another argument for the necessity of combining the bacteriologic with the chemic examination of suspected water supplies.

New Theory of Seasickness.—The most generally accepted theory of the causation of seasickness is that which attributes it to an influence on the circulation of the cerebral cortex produced by the oscillation of the ship, thus accounting for the gastric symptoms. This will not, however, explain all cases of naupathia. Rubenstein has often observed that symptoms of *mal de mer*—for instance, paleness of the face, and especially of the lips—develop in some persons when the sea is calm and the vessel moves without oscillation. In these cases he concludes that the cause of the malady is the irritation of the retina caused by the solar rays reflected from the water. This irritation, transmitted to the brain, provokes the well-known symptoms. It is, therefore, well not to look at the water. *Mal de mer* is observed also on snow fields, on the sands of the desert and of the seashore. Under these conditions, gray or blue spectacles afford relief. The author (*Rev. Int. Med. et Chir.*) observed a hysterical female who had retinal hyperesthesia and on sunny days experienced scintillations, photophobia, nausea and vomiting. These symptoms were not produced if the back was turned to the sun. This hypothesis explains why the most nervous and hysterical women are most subject to naupathia. Rubenstein calls the attention of ships' surgeons to this observation and concludes with a play of words: "*Die Seekrankheit reducirt sich für manche Fälle auf eine Sehkrankheit.*"

Pathologic Relations between the Teeth and the Eyes.—Led thereto by his observation of a number of patients, with obstinate ocular affections which rapidly disappeared when a coexistent dental affection was treated, Courtaix concludes (*Rev. Int. de Med. et Chir. Prat.*), after a consideration of the anatomic and physiologic relations between the eyes and the teeth, that there exists a genuine pathologic relation between these organs. Some affections of the eye provoke such violent odontalgia as to lead to suspicion of caries, and thus to a useless sacrifice. Dental troubles may, on the other hand, cause varied symptoms in the eyes; among these are caries, alveolo-dental periostitis, alveolar suppuration, inflammation of the maxillary sinus or of the orbital cellular tissue, malposition of the wisdom tooth, foreign bodies in carious cavities, or poorly-fitted prosthetic appliances. Whenever painful or inflammatory conditions of the eye from unknown causes occur and resist usual treatment, when there is suppression or diminution of visual acuity which can not be explained by ophthalmoscopic examination, by changes in intra-ocular tension or by cerebral complications—in all these cases the teeth should be carefully examined and if any lesions are discovered appropriate treatment at once instituted. These ocular symptoms are usually transient and disappear when their cause is removed. In some cases, however, especially if the causes have been too long neglected, grave consequences ensue.

Abandonment of Fort Mackinac, Mich.—Fort Mackinac, one of the recently abandoned military posts, was so isolated that probably few medical officers of the Army will regret being deprived of the possibility of serving a four years' term of duty within its walls. It is true that of late one could reach a railroad station on the mainland at St. Ignace on

the north, and at Mackinaw City on the south, or could embark for Chicago on the one side or Detroit on the other, from May to November by regular steamers; but throughout most of the modern history of this post, Sheboygan, 18 miles distant, was the nearest town of any note, and Saginaw, 180 miles distant, the nearest railway station. The island on which the post was built is about nine miles in circumference and reaches its highest elevation on the northern side. The post was on the south side on a plateau elevated about one hundred feet above the water level and reached by a steep ascent from the gradually sloping shore of the lake, with the village of Mackinac on the slope in front and on either side. On the north the land rose to a height of about three hundred feet in a succession of benches or terraces which formed the lake shores of the island in former ages. The fort was small, enclosing only about half an acre. Most of its buildings were old; that used as a post exchange dated from 1820; the guard house from 1828, and the soldiers' barracks from 1858. The last was a long, two-storied frame building, with wings, in which two companies were sometimes crowded. The reports of 1875 represent the men as packed in double bunks, one tier above another, with an air space of only 377 cubic feet per man, and no provision for ventilation. Of late, however, there has been but one company stationed at the post, thus permitting part of the lower floor of the barracks to be used as a gymnasium. At that time the water supply was carted from the lake and supplemented by the rainfall collected in cisterns; but since then the water of some springs was pumped into a reservoir on top of one of the old block houses, and a plentiful supply was delivered by pipes to every house. At the same time, sewers were introduced, the outfall of which was carried by an 8-inch iron pipe 750 feet into the lake. A bathhouse with five tubs and a boiler to furnish hot water was also provided. The officers' quarters were old frame buildings on stone foundations, low in the ceiling but otherwise comfortable. There were large post gardens which furnished a plentiful supply of vegetables; fresh fish were abundant and milk, butter and eggs by no means scarce, so that the garrison fared better than most of the troops in the service of the United States. The climate was moderate on account of the insular position, the summer heat rarely above 90 degrees F. and the winter temperature seldom much below freezing. The high ground north of the post was a protection against cold north winds. Spring was cold, wet and disagreeable, but the other seasons were pleasant. Health was the normal condition of the garrison. Life must have been very pleasant at Fort Mackinac for a lazy man or a philosopher; but it is evident that after four years of such service most medical officers would have required a course at some metropolitan hospital before assuming medical and surgical responsibilities at a live military post.

Washington Notes.

Medical Society of the District.—At the meeting, held December 5, Dr. Berman read a paper entitled "Nasal Catarrh and its Treatment without Galvano-Cautery." Dr. Acker gave the history and presented the specimen of a "Case of General Tuberculosis with Ulcerative Endocarditis." At the meeting held on the 12th inst., Dr. Bryan read a paper entitled "The Surgical Treatment of Chronic Suppurating Otitis Media," which brought out a very active discussion. Dr. Acker read a paper on, and presented a "Specimen of Hodgkin's Disease." Dr. J. F. Thompson reported a case of "Hydrocephalus" on which he had operated. The President announced that Dr. Wm. P. Mason would address the Society at the meeting January 3, on the subject of "Water Supply of Foreign Cities."

The Washington Obstetrical and Gynecological Society.—At the meeting held on the 3d inst., Drs. A. F. A. King and J. Faxton Scott read a joint paper on "Puerperal Tetanus" and presented a culture of the bacillus prepared by Dr. Sophia Nordhoff, a guest of the Society. Drs. J. W. Bovee and I. S. Stone were elected to membership. Dr. H. L. E. Johnson presented the specimens and gave the histories of two cases of laparotomy for ovarian disease and a fibroid polypus from the uterus of a patient, which he had removed seven years ago.

Medical Journal Club.—At the annual meeting of the Medical Journal Club held on the 11th inst., Dr. D. Webster Prentiss was elected President (fifth term); Dr. H. A. Robbins, Vice-President, and Dr. F. P. Morgan, Secretary and Treasurer. The club subscribes to fourteen journals and has a very large library.

Washington Board of Trade.—At the annual meeting of the Board of Directors of the Board of Trade held on the 10th inst., the numerous standing committees for 1895 were appointed including one on Public Health, the *personnel* of which is: Dr. Samuel C. Busey, chairman; Thomas P. Woodward, Theodore W. Noyes, Dr. G. L. Magruder, William S. Thompson, Samuel S. Shedd, and Dr. H. L. E. Johnson.

Smallpox Hospital.—The smallpox hospital is at present out of commission; the last two cases were discharged this week.

New Case of Smallpox.—A case of smallpox was discovered here on the 11th inst., and although of mild form, causes more anxiety to the health authorities. The victim is a member of the Williams family and was removed from their house when the disease was first discovered and was thought up to this time to have escaped infection.

Dr. J. Ramsey Nevitt.—Dr. J. R. Nevitt, who volunteered to take charge of the smallpox hospital, has completed his duties and is once more at "liberty." Too much can not be said in recognition of his able management of the hospital and patients intrusted to his charge. The District Commissioners have thanked him officially by letter and orally and have directed his act made of public record. Cards announce that Dr. Nevitt will marry Miss Mary C. Hine of this city on the 19th inst.

Conference of State Boards of Health.—The tenth annual meeting of the National Conference of State Boards of Health was called to order on the 12th inst., and was opened by an address by the President, Dr. C. A. Lindsley. Among the delegates in attendance are: Dr. Jerome Cochran, Montgomery, Ala.; Dr. J. R. Laine, Sacramento, Cal.; Dr. C. A. Ruggles, Stockton, Cal.; Prof. C. A. Lindsley and George P. Ingersoll, of New Haven, Conn.; Dr. T. W. Reilly, Chicago; Dr. S. S. Boots, Dr. L. L. Whitesides, Dr. C. N. Metcalf, Dr. John N. Taylor and Dr. D. C. Ramsey, all of Indiana; Dr. G. Farrar Patton, New Orleans; Dr. F. L. Lutz and Dr. Albert Merrill, of St. Louis; Dr. Henry Mitchell, Asbury Park, N. J.; Dr. Florence O. Donohue, Syracuse, N. Y.; Dr. George Gillett Thomas, Wilmington, N. C.; Dr. Richard H. Lewis, Raleigh, N. C.; Dr. C. O. Probst, Columbus, Ohio; Dr. Woodward, District of Columbia; Dr. Benjamin Lee, Philadelphia; Dr. Gardner T. Swarts, Providence, R. I.; Dr. N. Fred Essig, Spokane, Wash., and Dr. U. O. B. Wingate, Milwaukee.

Philadelphia Notes.

Philadelphia Hospital.—The following changes have been made in the staff of the Philadelphia Hospital. Dr. Hobart A. Hare was elected one of the attending physicians, to succeed Dr. Judson A. Daland. Dr. Richard C. Norris, formerly the Registrar of the Hospital, was chosen to fill the obstetrical vacancy caused by the resignation of Dr. J. M. West; and Dr. Charles A. Oliver succeeds Dr. George M. Gould as ophthalmologist. Dr. A. A. Ghriskey was elected bacteriologist at the meeting of the Department of Charities and Correction held December 11. A strong effort is being made to have the insane patients removed from the Philadelphia

Hospital, and to have a separate institution erected by the State for their accommodation somewhere outside of the city limits.

COLLEGE OF PHYSICIANS.—The Gynecological Section of the College of Physicians elected Dr. C. B. Penrose Chairman and J. B. Shober Secretary. The Section on Surgery of the College of Physicians listened to papers on "Hernia," by Drs. William B. Coley, of New York, and William S. Halsted, of Johns Hopkins Hospital, Baltimore, December 14. At the same meeting, Dr. Thos. S. K. Morton exhibited a case of "Gastrotomy," by the method of Frank.

TUBERCULOSIS.—A committee from the Association for Restricting the Spread of Tuberculosis appeared before city councils last week and urged the passage of an appropriation of $100,000 for the construction of a special hospital for the treatment of consumptive patients, outside of the city limits.

HOUSTON HALL.—The cornerstone of Houston Hall, a new dormitory for students of the University of Pennsylvania, will be laid with public ceremonies next week. It will cost $100,000, and the entire amount has been presented by Mr. Henry M. Houston to erect the building as a memorial of his son, for whom it will be named.

BURIAL OF MEDICAL DIRECTOR BROWNE.—The funeral services of Medical Director John Mills Browne, late Surgeon-General of the Navy, were held on the 11th inst., at 2 o'clock, at St. John's P. E. Church, and were conducted by Rev. Mackay Smith. The services were numerously attended, among those present being representatives of Masonic orders, a committee of the Loyal Legion, and the governors of the Metropolitan Club. Dr. Browne was a Mason of the thirty-third degree. He was buried at Arlington with Masonic honors. The pall-bearers were Gen. B. C. Lord, U. S. A.; Surg.-Gen. Tryon, U. S. N.; Surg. J. C. Boyd, U. S. N.; Dr. Robert Fletcher, Medical Director R. C. Dean, U. S. N.; Medical Inspector W. K. Van Reyfen, U. S. N.; Chief Naval Instructor Philip Hichborn, Surg. J. S. Billings, U. S. A.; Mr. Arthur Brice, Senator Perkins, Pay Director J. A. Smith, U. S. N., and Surg. N. M. Rixey, U. S. N.

COLORED PHYSICIANS ORGANIZE.—A meeting of colored physicians and surgeons of the District was held December 5, at the Freedman's Hospital, to perfect an organization to be known as the Medical Chirurgical Society of the District of Columbia. Dr. S. R. Watts presided as temporary chairman and Dr. A. L. Herron acted as temporary secretary. At the preliminary meeting, heretofore noted in the JOURNAL, held November 21, a committee was appointed to draft a constitution and by-laws, consisting of Drs. J. C. Norwood, F. J. Shadd, J. R. Francis, Thomas Martin and Daniel Williams. It is provided that the code of ethics of the AMERICAN MEDICAL ASSOCIATION shall be the code of this society, and the practice fees the same as those of the Medical Association of the District.

The objects of the society, as stated in the constitution, are "to provide opportunity for mutual conference, the interchange of thought, the presentation of the results of experience, the consideration and promotion of all subjects relative to medicine and collateral branches of that science, the promotion of the health and the preservation of the lives of the community, and the promotion of the interests of the medical profession generally." A committee on essays and the general advancement of professional knowledge is provided for, to present at each meeting the names of four members who may agree to furnish papers on medical subjects, to be debated by the society. Those present were: Drs. J. A. McDuffield, R. L. Parrott, George W. Cabaniss, W. K. Price, Robert W. Brown, James C. Erwin, John S. Outlaw, H. W. Furniss, Albert H. Stevens, John N. Johnson, David A. Lane, B. Junius Cooke, William H. Conner, E. H. Allen, Samuel M. Pierre, C. A. Sewell, H. W. Haskins, A. W. Tancil and Thomas Martin.

Hospital Notes.

THE ROBERT JONES CONVALESCENT HOSPITAL at Toronto, Ontario, was opened December 7.

THE YALE FACULTY has decided to build a series of cottages for the reception of patients suffering with contagious diseases. They will be completely isolated and will probably be constructed near the present Yale infirmary. Work on the cottages will begin at once.

STATEN ISLAND HOSPITAL.—At the annual meeting of the medical staff of the new Staten Island Hospital, held December 3, the following staff was chosen for the ensuing year: Surgeons, William C. Walser, J. J. Van Rensselaer, E. D. Coonley, C. Wilmot Townsend, George P. Jessup. Physicians, Fred E. Clark, T. J. Thompson, John L. Feeney and F. T. Barber. Dr. Theodore Walser, of New Brighton, was elected consulting physician for the year.

A NEW ARMY HOSPITAL AT FORT SNELLING, MINN.—An appropriation of $40,000 will be asked from Congress, for the erection of a new army hospital at Fort Snelling.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Dec. 8, 1894, to Dec. 14, 1894.

First Lieut. CHARLES E. B. FLAGG, Asst. Surgeon, now on duty at Angel Island, Cal., will report in person at Ft. Townsend, Wash., for temporary duty at that post.

Capt. EUCLID B. FRICK, Asst. Surgeon, is granted leave of absence for four months.

Capt. EUGENE L. SWIFT, Asst. Surgeon, leave of absence granted is further extended two months.

First Lieut. MADISON M. BREWER, Asst. Surgeon, upon the expiration of his present leave of absence, will be relieved from duty at Ft. Riley, Kan., and will report for duty at Ft. Keogh, Mont.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Dec. 15, 1894.

P. A. Surgeon M. R. PIGOTT, from Chelsea Hospital, and to Mare Island Hospital.

P. A. Surgeon S. G. EVANS, from Mare Island Hospital, and to the U. S. S. "Pinta."

Marine-Hospital Changes.—Official list of changes of stations and duties of medical officers of the U. S. Marine-Hospital Service, for the fifteen days ended Dec. 15, 1894.

Surgeon G. W. STONER, granted leave of absence for twenty-two days, Dec. 10, 1894.

P. A. Surgeon M. J. ROSENAU, to report at Bureau for special temporary duty, Dec. 10, 1894.

LETTERS RECEIVED.

Antikamnia Chemical Co., St. Louis, Mo.; Andrews, Edmund, Chicago, Ill.; Alta Pharmacal Co., (2) St. Louis, Mo.; Anderson, A. A. Des Moines, Iowa.; Andrews, B. J., Burlington, Vt.

Bogie, M. A., Kansas City, Mo.; Brandt, W. E., Boston, Mass.; Barger, W. T., Hardin, Ohio; Beman's General Newspaper Agency, Ann Arbor, Mich.; Baker, D. P., Napoli, N. Y.; Bates, Mrs. Kinzie, Detroit, Mich.; Blodgett, F. J., New York, N. Y.; Bower, R. W., El Paso, Texas; Barkan, L., Fernandina, Fla.; Burdine, Ira P., Smithville, Miss.

Cannaday, Chas. G., Roanoke, Va.; Commercial National Bank, Chicago, Ill.; Castle Wilmot, & Co., Rochester, N. Y.; Cumston, C. G., Boston, Mass.; Columbia Chemical Co., Washington, D. C.

Doliber-Goodale Co., Boston, Mass.; Davis, Geo. S., Detroit, Mich.; Dent, W. B., Oakley, Md.; Davisson, J. H., Los Angeles, Cal.

Engelmann, Rosa, Chicago.

Foster, C. W., Woodfords, Me.; French, Pinckney, St. Louis, Mo.; Finley, Robt. P., Altoona, Pa.; Foster, E. M., Manchester, Ohio.

Gardiner, Charles, Emporia, Kan.; Graves, F. C., Bridgeport, Conn. Gould, G. M., Philadelphia, Pa.; Ground, W. E., West Superior, Wis.

Hummel, A. L., Denver, Colo.; Hummel, A. L., Adv. Agency, Philadelphia, Pa.; Humphrey, Dan., Lawrence, Mass.

Jordan, Edwin O., Chicago; Johnson, H. H., (2) Macon, Ga.; Johnson, D., Northfield, Vt.

Kaiser, A., Detroit, Mich.; Kenyon News Postal Subscription Co., Chicago, Ill.

Lindley, Walter, Los Angeles, (2) Cal.; Lemen, L. E., Denver, Colo.; Loeb, Hanau W., St. Louis, Mo.

McGuire, C. M., & Eva, Walsenburg, Colo.; Marks, A. A., New York, N. Y.; Moore's Newspaper Subscription Agency, Brockport, N. Y.; Morse, Lyman D., New York, N. Y.; Marchand P. Alfred, Cincinnati, Ohio; Micheaux, P. J., Washington, D. C.; Montgomery, E. E., Philadelphia, Pa.

New York Post Graduate Medical School, New York, N. Y.; Newman, Henry P., Chicago.

Oneal, Oren, Chicago, Ill.; Owsley, W. T., Washington, D. C.

Papoid The Co., New York, N. Y.

Quinn, F. A., Peoria, Ill.

Richardson, A. Frank, New York, N. Y.; Rodi, C. H., Calumet, Mich.

Steiger, E. & Co., New York, N. Y.; Subscription News Co., Chicago, Ill.; Smart, Chas., Washington, D. C.; Smith, C. B., Newtown, Pa.; Scott, A. J., Londonville, Ohio; Smith, Anna Graff, Toledo, Ohio; Smith Lum. Pub. House, Philadelphia, Pa.; Stewart, F. E., Detroit, Mich.

Thorington, James, Philadelphia, Pa.

Warner, W. R. & Co., Philadelphia, Pa.; Whitman, C. H., Los Angeles, Cal.; Wyeth, M. C., Hot Springs, Ark.; Wells, Edward F., Chicago, Ill.; Whitford, W., Chicago, Ill.; Wandless, H. W., Dallas, Texas; Walker Brothers, Fargo, N. D.; Weaver, W. H., Chicago, Ill.

Yancey, E. F., Sedalia, Mo.; Yost, J. O., Haselton, Ohio.

Zeigler, J. S., Melrose, Md.